HEAT CONTROLLER, INC.

ENGINEERING DESIGN GUIDE

Commercial Horizontal & Vertical Packaged Water-Source Heat Pumps:

HBH/V Compact

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HB Series

The HBH/V Series exceeds ASHRAE 90.1 efficiencies, and uses R-410A zero ozone depletion refrigerant, making it an extremely environmentally-friendly option. HBH/V is eligible for additional LEED™ (Leadership in Energy and Environmental Design) points because of the "green" technology design. With one of the smallest cabinets in the industry, the HBH/V will easily fit into tight spaces. Designed to be backward compatible with thousands of older water-source heat pumps.

Available in sizes from 1/2 ton (1.76 kW) through 5 tons (17.6 kW) with multiple cabinet options (vertical upflow and horizontal) the HBH/V offers a wide range of units for most any installation. The HBH/V has an extended range refrigerant circuit, capable of geothermal ground loop applications (with optional extended range insulation) as well as boiler-tower water loop applications. Standard features include: Copeland scroll compressors (rotary for size 018 and below), microprocessor controls, galvanized steel cabinet, galvanized steel with epoxy powder painted drain pan and sound absorbing air handler insulation.

Heat Controller's exclusive double isolation compressor mounting system makes the HBH/V the quietest unit on the market. Compressors are mounted via rubber vibration isolators to a heavy gauge mounting plate, which is further isolated from the cabinet base with rubber grommets for maximized vibration/sound attenuation. The easy access control box and large access panels make installing and maintaining the unit easier than other water-source heat pumps currently in production, proving that a small unit can be easy to service.

The HBH/V Series is full of options, such as an e-coated air coil. Optional high static fan motor expands the operating range and helps overcome some of the challenges associated with ductwork for retrofit installations. A Cupro-Nickel water-coil and sound absorbing mute package are options that make a great unit even better.

The HBH/V Series Water-Source Heat Pumps are designed to meet the challenges of today's HVAC demands with one of the most innovative products available on the market.

Unit Features

- Sizes 006 (1/2 ton, 1.76 kW) through 060 (5 tons, 17.6 kW)
- R-410A refrigerant
- Exceeds ASHRAE 90.1 efficiencies
- Galvanized steel construction
- Epoxy powder painted galvanized steel drain pan
- Sound absorbing glass fiber insulation
- Unique double isolation compressor mounting via vibration isolating rubber grommets for quiet operation
- Insulated divider and separate compressor/air handler compartments
- Copeland scroll compressors (rotary for size 018 and below)
- TXV metering device
- Microprocessor controls standard
- Field convertible discharge air arrangement for horizontal units
- PSC three-speed fan motor
- Internally trapped condensate drain line (vertical units only)
- Unit Performance Sentinel performance monitoring system
- Eight Safeties Standard
- Extended range (20 to 120°F, -6.7 to 48.9°C) capable
- High static blowers available
- Cupro-Nickel water-coil available
- Sound absorbing UltraQuiet package available

Selection Procedure

Reference Calculations

Heating

$$LWT = EWT - \frac{HE}{GPM \times 500}$$

$$LAT = EAT + \frac{HC}{CFM \times 1.08}$$

Cooling

$$LWT = EWT + \frac{HR}{GPM \times 500}$$

$$LAT\ (DB) = EAT\ (DB) - \frac{SC}{CFM \times 1.08}$$

$$LC = TC - SC$$

$$S/T = \frac{SC}{TC}$$

Legend and Glossary of Abbreviations

BTUH = BTU(British Thermal Unit) per hour
CFM = airflow, cubic feet/minute
COP = coefficient of performance = BTUH output/BTUH input
DB = dry bulb temperature (°F)
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)
EER = energy efficiency ratio = BTUH output/Watt input
EPT = external pipe thread
ESP = external static pressure (inches w.g.)
EWT = entering water temperature
GPM = water flow in U.S. gallons/minute
HE = total heat of extraction, BTUH
HC = air heating capacity, BTUH
HR = total heat of rejection, BTUH
HWC = hot water generator (desuperheater) capacity, Mbtuh
IPT = internal pipe thread
KW = total power unit input, kilowatts
LAT = leaving air temperature, °F
LC = latent cooling capacity, BTUH
LWT = leaving water temperature, °F
MBTUH = 1000 BTU per hour
S/T = sensible to total cooling ratio
SC = sensible cooling capacity, BTUH
TC = total cooling capacity, BTUH
WB = wet bulb temperature (°F)
WPD = waterside pressure drop (psi & ft. of hd.)

Conversion Table - to convert inch-pound (English) to SI (Metric)

Air Flow	Water Flow	Ext Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = gpm x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

Selection Procedure

Step 1 Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.

Step 2 Obtain the following design parameters: Entering water temperature, water flow rate in GPM, air flow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Air flow CFM should be between 300 and 450 CFM per ton. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.

Step 3 Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.

Step 4 Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities (Note: interpolation is permissible, extrapolation is not).

Step 5 Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for Water-Source Heat Pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.

Step 6 Determine the correction factors associated with the variable factors of dry bulb, wet bulb and air flow.

Corrected Total Cooling =
tabulated total cooling x wet bulb correction x air flow correction
Corrected Sensible Cooling =
tabulated sensible cooling x dry bulb correction x air flow correction

Step 7 Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.

Step 8 When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

Example Equipment Selection For Cooling

Step 1 Load Determination:
Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling ..... 23,700 BTUH
Sensible Cooling ..... 16,500 BTUH
Entering Air Temp.... 80°F Dry Bulb / 65°F Wet Bulb

Step 2 Design Conditions:
Similarly, we have also obtained the following design parameters:

Entering Water Temp ..... 90°F
Water Flow (Based upon 10°F rise in temp.) 6.0 GPM
Air Flow ..... 800 CFM

Step 3, 4 & 5 HP Selection:
After making our preliminary selection (TC024), we enter the tables at design water flow and water temperature and read Total Cooling, Sens. Cooling and Heat of Rej. capacities:

Total Cooling ..... 23,400 BTUH
Sensible Cooling ..... 17,500 BTUH
Heat of Rejection ..... 30,200 BTUH

Step 6 & 7 Entering Air and Airflow Corrections:
Next, we determine our correction factors.

	Table		Ent Air		Air Flow		Corrected
Corrected Total Cooling =	23,400	x	0.9681	x	1.0050	=	22,767
Corrected Sens Cooling =	17,500	x	1.1213	x	0.9820	=	19,270
Corrected Heat of Reject =	30,200	x	0.9747	x	1.0434	=	30,713

Step 8 Water Temperature Rise Calculation & Assessment:

Actual Temperature Rise 10.2°F

When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within +/- 10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is within 1,000 Btuh the actual indicated load.

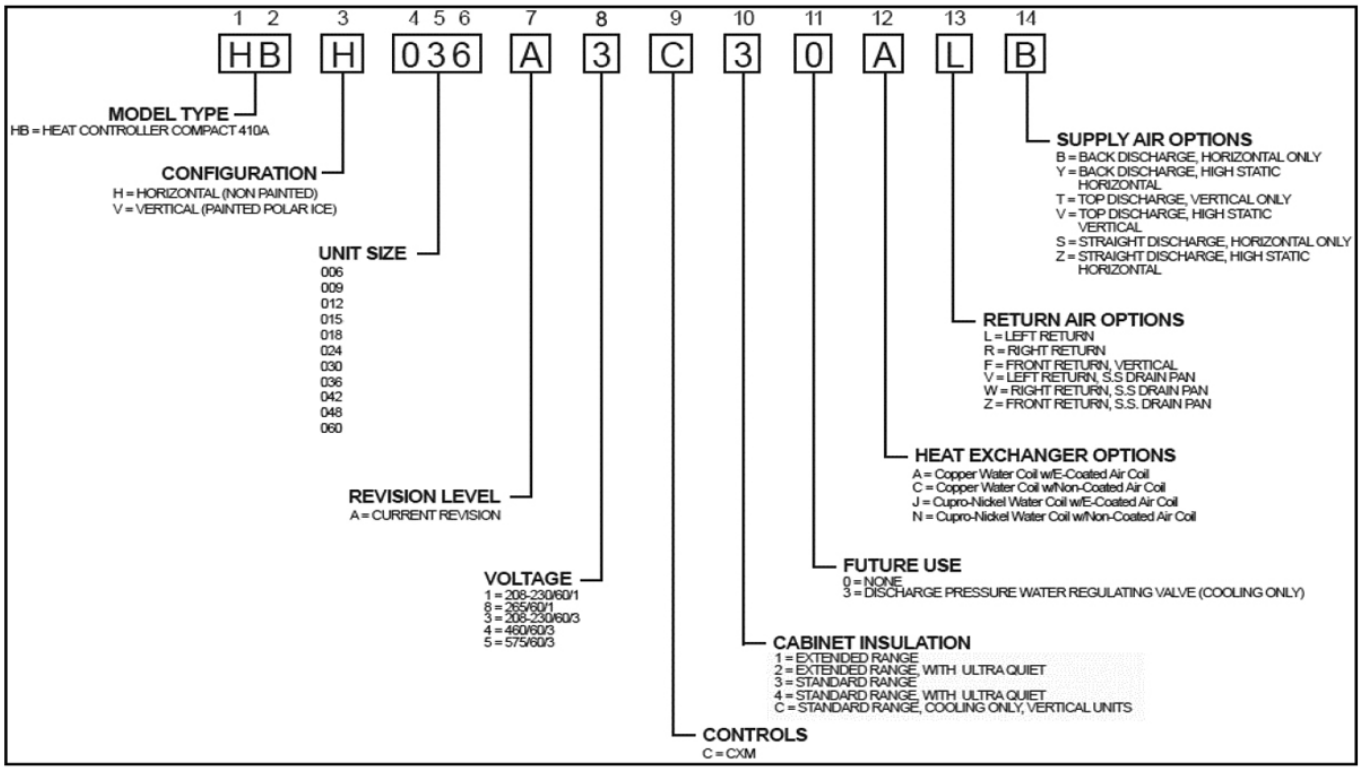
HBH & HBV COMPACT Horizontal & Vertical HFC-410a Units

Entering Water Temperature Range: 20 - 120°F (-6.7 - 48.9°C)

Horizontal Water Source Heat Pump
Sizes 006-060

Vertical Water Source Heat Pump
Sizes 006-060

HBH & HBV Model Structure



Basic Unit Description:

The basic unit price includes sealed heat pump refrigerant circuit and air handler within cabinetry, filter, and a factory installed hanger kit on horizontal units.

- **Cabinetry** – Compact design - galvanized steel construction - controls access panel - compressor access panels - FPT water connections - high and low voltage knockouts - 1" (25mm), air filter and filter rack. All vertical units have a left or right return air option, sizes 006-030 have a front return option. All horizontal units have field convertible discharge air patterns with extra parts required.
- **Standard Controls** - CXM Controller, loss of charge switch, high pressure switch, water coil low temperature cutout, lockout safety circuit resetable at thermostat or disconnect, LED fault indication, five minute anti-short cycle protection, random start, high and low voltage protection, condensate overflow protection, dry contact for alarm.
- **Compressor** - High efficiency hermetic scroll or rotary, overload protected - internally sprung & externally isolated using dual vibration dampening system for extra quiet operation. Mounting system incorporates rubber grommet isolation under the compressor and rubber grommet isolation between the compressor mounting tray and unit base.
- **Reversing Valve -** 4-way, pilot operated, solenoid activated in the cool mode.
- **Refrigerant Circuit -** Utilizes expansion valve metering device - copper tubing interconnecting all components - sealed & tested non-ozone depleting, R-410A refrigerant circuit with high & low side schraeder ports.
- **Water to Refrigerant Coil -** Tube-in-tube, convoluted copper inner water tube.
- **Refrigerant to Air Coil -** Lanced aluminum fins on rifled copper tubes.
- **Blower Motor -** Three-speed PSC direct drive, permanently lubricated (Two-speed on 575 volt applications).
- **UltraQuiet Option -** Compressor incorporates spring mounting system, 015-060 include compressor discharge muffler, blower housing is covered with high density noise suppression material.
- **Application -** Units can be applied in WLHP, GWHP, or GLHP applications.

Performance Data
ARI/ASHRAE/ISO 13256-1

ASHRAE/ARI/ISO 13256-1. English (IP) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 77°F		Heating 32°F	
	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh6	EER Btuh/W	Capacity Btuh	COP
HB-006	5,800	13.2	7,500	4.7	6,900	21.1	6,200	4.0	6,200	15.4	4,900	3.4
HB-009	8,800	13.4	11,600	4.2	10,100	21.0	9,800	3.9	9,300	15.7	7,900	3.4
HB-012	11,700	13.5	15,200	4.3	13,700	20.8	12,500	3.8	12,000	14.9	9,900	3.2
HB-015	14,500	15.4	17,300	5.0	16,800	24.5	14,400	4.4	15,000	17.2	11,100	3.6
HB-018	17,300	14.3	21,500	5.0	20,600	24.2	17,200	4.4	18,400	16.3	13,900	3.4
HB-024	23,700	13.4	28,500	4.7	26,700	20.9	24,000	4.1	24,900	15.4	18,500	3.3
HB-030	28,100	13.4	35,100	4.6	31,700	20.1	29,600	4.1	28,900	15.1	23,400	3.4
HB-036	34,500	13.5	45,200	4.4	38,700	20.7	37,500	4.0	35,300	14.9	29,600	3.3
HB-042	40,100	13.1	52,700	4.3	45,900	19.6	44,000	3.8	40,500	14.4	34,300	3.2
HB-048	47,700	13.3	55,900	4.7	54,300	20.5	46,500	4.1	49,000	14.7	36,400	3.4
HB-060	59,400	13.4	77,000	4.3	66,600	19.9	64,000	3.8	60,100	14.8	50,500	3.1

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
Heating capacities based upon 68°F DB, 59°F WB entering air temperature
All ratings based upon operation at lower voltage of dual voltage rated models

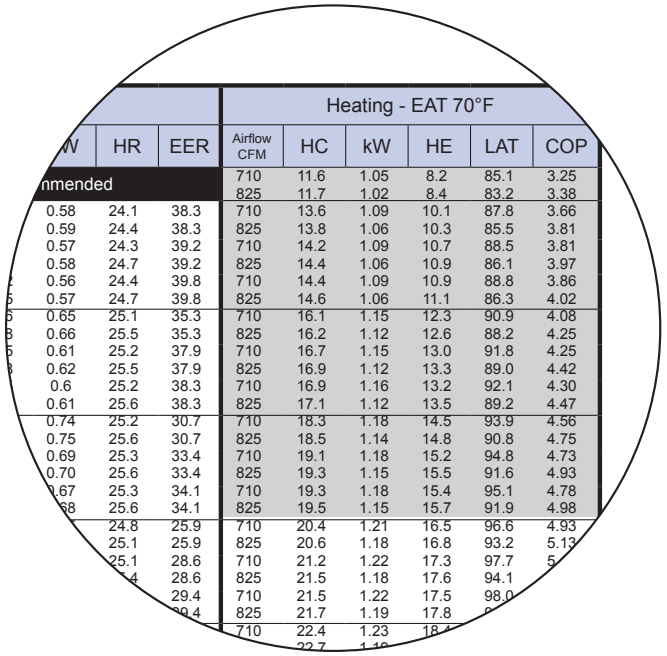
ASHRAE/ARI/ISO 13256-1. Metric (SI) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Cooling 25°C		Heating 0°C	
	Capacity Watts	Cooling COP W/W	Capacity Watts	COP	Capacity Watts	Cooling COP W/W	Capacity Watts	COP	Capacity Watts	Cooling COP W/W	Capacity Watts	COP
HB-006	1.70	3.9	2.20	4.7	2.02	6.2	1.82	4.0	1.82	4.5	1.44	3.4
HB-009	2.58	3.9	3.40	4.2	2.96	6.2	2.87	3.9	2.72	4.6	2.31	3.4
HB-012	3.43	4.0	4.45	4.3	4.01	6.1	3.66	3.8	3.52	4.4	2.90	3.2
HB-015	4.25	4.5	5.07	5.0	4.92	7.2	4.22	4.4	4.39	5.0	3.25	3.6
HB-018	5.07	4.2	6.30	5.0	6.04	7.1	5.04	4.4	5.39	4.8	4.07	3.4
HB-024	6.94	3.9	8.35	4.7	7.82	6.1	7.03	4.1	7.30	4.5	5.42	3.3
HB-030	8.23	3.9	10.28	4.6	9.29	5.9	8.67	4.1	8.47	4.4	6.86	3.4
HB-036	10.11	4.0	13.24	4.4	11.34	6.1	10.99	4.0	10.34	4.4	8.67	3.3
HB-042	11.75	3.8	15.44	4.3	13.45	5.7	12.89	3.8	11.87	4.2	10.05	3.2
HB-048	13.98	3.9	16.38	4.7	15.91	6.0	13.62	4.1	14.36	4.3	10.67	3.4
HB-060	17.40	3.9	22.56	4.3	19.51	5.8	18.75	3.8	17.61	4.3	14.80	3.1

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature
Heating capacities based upon 20°C DB, 15°C WB entering air temperature
All ratings based upon operation at lower voltage of dual voltage rated models

Performance Data
Selection Notes

For operation in the shaded area when water is used in lieu of an anti-freeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 40°F [4.4*C] when the JW3 jumper is not clipped (see example below). This is due to the potential of the refrigerant temperature being as low as 32°F [0°C] with 40°F [4.4°C] LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.



			Heating - EAT 70°F					
W	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
nmended			710	11.6	1.05	8.2	85.1	3.25
			825	11.7	1.02	8.4	83.2	3.38
0.58	24.1	38.3	710	13.6	1.09	10.1	87.8	3.66
0.59	24.4	38.3	825	13.8	1.06	10.3	85.5	3.81
0.57	24.3	39.2	710	14.2	1.09	10.7	88.5	3.81
0.58	24.7	39.2	825	14.4	1.06	10.9	86.1	3.97
0.56	24.4	39.8	710	14.4	1.09	10.9	88.8	3.86
0.57	24.7	39.8	825	14.6	1.06	11.1	86.3	4.02
0.65	25.1	35.3	710	16.1	1.15	12.3	90.9	4.08
0.66	25.5	35.3	825	16.2	1.12	12.6	88.2	4.25
0.61	25.2	37.9	710	16.7	1.15	13.0	91.8	4.25
0.62	25.5	37.9	825	16.9	1.12	13.3	89.0	4.42
0.6	25.2	38.3	710	16.9	1.16	13.2	92.1	4.30
0.61	25.6	38.3	825	17.1	1.12	13.5	89.2	4.47
0.74	25.2	30.7	710	18.3	1.18	14.5	93.9	4.56
0.75	25.6	30.7	825	18.5	1.14	14.8	90.8	4.75
0.69	25.3	33.4	710	19.1	1.18	15.2	94.8	4.73
0.70	25.6	33.4	825	19.3	1.15	15.5	91.6	4.93
0.67	25.3	34.1	710	19.3	1.18	15.4	95.1	4.78
68	25.6	34.1	825	19.5	1.15	15.7	91.9	4.98
	24.8	25.9	710	20.4	1.21	16.5	96.6	4.93
	25.1	25.9	825	20.6	1.18	16.8	93.2	5.13
	25.1	28.6	710	21.2	1.22	17.3	97.7	5.
	4	28.6	825	21.5	1.18	17.6	94.1	
		29.4	710	21.5	1.22	17.5	98.0	
		29.4	825	21.7	1.19	17.8		
			710	22.4	1.23	18.1		
				22.7	1.19			

Example:

At 50°F EWT (Entering Water Temperature) and 2.25 gpm/ton, a 3 ton unit has a HE of 27,300 Btuh. To calculate LWT, rearrange the formula for HE as follows:

HE = TD x GPM x 500, where HE = Heat of Extraction (Btuh); TD = temperature difference (EWT - LWT) and GPM = U.S. Gallons per Minute.

TD = HE / (GPM x 500)

TD = 27,300 / (6.75 x 500)

TD = 8°F

LWT = EWT - TD

LWT = 50 - 8 = 42°F

In this example, as long as the EWT does not fall below 50°F, the system will operate as designed. For EWTs below 50°F, higher flow rates will be required (open loop systems, for example, require at least 2 gpm/ton when EWT is below 50°F).

Performance Data
HBH/V 006

220 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	1.5	1.7	4.0	Operation not recommended							170	4.3	0.49	2.7	93.3	2.6
	1.5	1.7	4.0								225	4.4	0.44	2.9	88.0	2.9
30	0.8	0.5	1.2	170	7.4	4.2	0.57	0.28	8.4	26.4	170	4.6	0.50	3.0	95.2	2.7
	0.8	0.5	1.2	225	7.7	4.8	0.62	0.29	8.7	26.4	225	4.7	0.45	3.2	89.5	3.1
	1.1	0.8	1.8	170	7.4	4.1	0.55	0.26	8.3	28.5	170	4.8	0.51	3.2	96.2	2.8
	1.1	0.8	1.8	225	7.7	4.6	0.60	0.27	8.6	28.5	225	4.9	0.46	3.4	90.3	3.2
	1.5	1.3	2.9	170	7.3	4.0	0.54	0.25	8.2	29.2	170	4.9	0.51	3.2	96.8	2.8
	1.5	1.3	2.9	225	7.6	4.5	0.59	0.26	8.5	29.2	225	5.0	0.46	3.5	90.7	3.2
40	0.8	0.4	0.9	170	7.3	4.3	0.59	0.31	8.3	23.2	170	5.3	0.52	3.6	98.8	3.0
	0.8	0.4	0.9	225	7.6	4.8	0.64	0.33	8.7	23.2	225	5.4	0.47	3.8	92.3	3.4
	1.1	0.6	1.4	170	7.4	4.2	0.57	0.29	8.4	25.8	170	5.5	0.53	3.8	100.2	3.1
	1.1	0.6	1.4	225	7.7	4.8	0.62	0.30	8.7	25.8	225	5.7	0.47	4.1	93.3	3.5
	1.5	1.0	2.4	170	7.4	4.2	0.56	0.28	8.4	26.9	170	5.7	0.53	3.9	100.9	3.1
	1.5	1.0	2.4	225	7.7	4.7	0.61	0.29	8.7	26.9	225	5.8	0.48	4.2	93.9	3.6
50	0.8	0.3	0.8	170	6.9	4.2	0.61	0.35	8.1	19.9	170	6.0	0.54	4.2	102.7	3.3
	0.8	0.3	0.8	225	7.2	4.8	0.66	0.36	8.5	19.9	225	6.1	0.48	4.5	95.3	3.7
	1.1	0.5	1.2	170	7.2	4.3	0.59	0.32	8.3	22.5	170	6.3	0.55	4.5	104.4	3.4
	1.1	0.5	1.2	225	7.5	4.8	0.64	0.33	8.6	22.5	225	6.5	0.49	4.8	96.6	3.9
	1.5	0.9	2.0	170	7.3	4.3	0.58	0.31	8.3	23.8	170	6.5	0.55	4.6	105.4	3.4
	1.5	0.9	2.0	225	7.6	4.8	0.63	0.32	8.7	23.8	225	6.7	0.50	5.0	97.4	3.9
60	0.8	0.3	0.6	170	6.5	4.1	0.63	0.39	7.9	16.8	170	6.7	0.56	4.9	106.7	3.5
	0.8	0.3	0.6	225	6.8	4.7	0.69	0.40	8.2	16.8	225	6.9	0.50	5.2	98.4	4.0
	1.1	0.5	1.0	170	6.9	4.2	0.61	0.36	8.1	19.1	170	7.1	0.57	5.2	108.6	3.7
	1.1	0.5	1.0	225	7.1	4.8	0.67	0.37	8.4	19.1	225	7.3	0.51	5.5	99.9	4.2
	1.5	0.8	1.8	170	7.0	4.2	0.61	0.34	8.2	20.4	170	7.3	0.57	5.3	109.7	3.7
	1.5	0.8	1.8	225	7.3	4.8	0.66	0.36	8.5	20.4	225	7.5	0.51	5.7	100.7	4.3
70	0.8	0.2	0.5	170	6.0	4.0	0.66	0.43	7.5	14.0	170	7.4	0.58	5.5	110.5	3.8
	0.8	0.2	0.5	225	6.3	4.5	0.72	0.45	7.8	14.0	225	7.6	0.52	5.9	101.4	4.3
	1.1	0.4	0.9	170	6.4	4.1	0.64	0.40	7.8	16.0	170	7.8	0.58	5.8	112.4	3.9
	1.1	0.4	0.9	225	6.7	4.6	0.70	0.42	8.1	16.0	225	8.0	0.53	6.2	102.8	4.5
	1.5	0.7	1.6	170	6.6	4.1	0.63	0.38	7.9	17.1	170	8.0	0.59	5.9	113.4	4.0
	1.5	0.7	1.6	225	6.8	4.7	0.69	0.40	8.2	17.1	225	8.2	0.53	6.4	103.6	4.5
80	0.8	0.2	0.5	170	5.6	3.8	0.68	0.47	7.2	12.0	170	7.9	0.59	5.9	113.2	4.0
	0.8	0.2	0.5	225	5.8	4.3	0.74	0.49	7.5	12.0	225	8.1	0.53	6.3	103.5	4.5
	1.1	0.4	0.8	170	5.9	3.9	0.67	0.45	7.4	13.2	170	8.3	0.60	6.3	115.4	4.1
	1.1	0.4	0.8	225	6.1	4.4	0.73	0.46	7.7	13.2	225	8.5	0.54	6.7	105.1	4.6
	1.5	0.6	1.5	170	6.2	4.0	0.65	0.42	7.6	14.7	170	8.4	0.60	6.3	115.7	4.1
	1.5	0.6	1.5	225	6.4	4.6	0.71	0.44	7.9	14.7	225	8.6	0.54	6.7	105.3	4.6
85	0.8	0.2	0.5	170	5.3	3.7	0.70	0.5	7.0	10.7	170	8.2	0.60	6.2	114.7	4.0
	0.8	0.2	0.5	225	5.5	4.2	0.76	0.52	7.3	10.7	225	8.4	0.5	6.6	104.6	4.6
	1.1	0.3	0.8	170	5.6	3.8	0.68	0.47	7.2	11.9	170	8.5	0.6	6.4	116.2	4.1
	1.1	0.3	0.8	225	5.8	4.3	0.74	0.49	7.5	11.9	225	8.7	0.5	6.8	105.8	4.7
	1.5	0.6	1.4	170	5.8	3.9	0.67	0.45	7.4	13.1	170	8.5	0.6	6.4	116.4	4.1
	1.5	0.6	1.4	225	6.1	4.4	0.73	0.47	7.7	13.1	225	8.7	0.5	6.8	105.9	4.7
90	0.8	0.2	0.4	170	5.0	3.6	0.72	0.53	6.7	9.4	170	8.5	0.61	6.4	116.3	4.1
	0.8	0.2	0.4	225	5.2	4.1	0.79	0.55	7.0	9.4	225	8.7	0.55	6.8	105.8	4.7
	1.1	0.3	0.7	170	5.3	3.7	0.70	0.49	7.0	10.7	170	8.6	0.62	6.5	117.0	4.1
	1.1	0.3	0.7	225	5.5	4.2	0.76	0.52	7.3	10.7	225	8.8	0.55	7.0	106.4	4.7
	1.5	0.6	1.3	170	5.5	3.8	0.69	0.48	7.1	11.5	170	8.7	0.62	6.5	117.1	4.1
	1.5	0.6	1.3	225	5.7	4.3	0.75	0.50	7.4	11.5	225	8.9	0.56	7.0	106.5	4.7
100	0.8	0.2	0.4	170	4.4	3.4	0.76	0.58	6.4	7.6	Operation not recommended					
	0.8	0.2	0.4	225	4.6	3.8	0.83	0.60	6.6	7.6						
	1.1	0.3	0.7	170	4.7	3.5	0.74	0.55	6.6	8.7						
	1.1	0.3	0.7	225	4.9	4.0	0.80	0.57	6.9	8.7						
	1.5	0.5	1.2	170	4.9	3.6	0.73	0.53	6.7	9.3						
	1.5	0.5	1.2	225	5.1	4.0	0.79	0.55	7.0	9.3						
110	0.8	0.2	0.3	170	3.9	3.1	0.81	0.63	6.0	6.2						
	0.8	0.2	0.3	225	4.1	3.6	0.87	0.66	6.3	6.2						
	1.1	0.3	0.6	170	4.2	3.3	0.78	0.60	6.2	7.0						
	1.1	0.3	0.6	225	4.4	3.7	0.85	0.62	6.5	7.0						
	1.5	0.5	1.2	170	4.3	3.3	0.77	0.58	6.3	7.4						
	1.5	0.5	1.2	225	4.5	3.8	0.83	0.61	6.6	7.4						
120	0.8	0.1	0.3	170	3.5	3.0	0.85	0.68	5.8	5.0						
	0.8	0.1	0.3	225	3.6	3.3	0.93	0.71	6.0	5.0						
	1.1	0.3	0.6	170	3.7	3.0	0.83	0.65	5.9	5.6						
	1.1	0.3	0.6	225	3.8	3.4	0.90	0.68	6.2	5.6						
	1.5	0.5	1.1	170	3.8	3.1	0.81	0.64	6.0	6.0						
	1.5	0.5	1.1	225	4.0	3.5	0.88	0.67	6.2	6.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 009

325 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	2.3	4.5	10.5	Operation not recommended							250	6.5	0.73	4.2	94.2	2.6
	2.3	4.5	10.5								330	6.7	0.66	4.4	88.8	3.0
30	1.1	1.3	3.0	250	10.2	6.0	0.59	0.39	11.6	26.6	250	7.1	0.74	4.7	96.3	2.8
	1.1	1.3	3.0	330	10.7	6.8	0.64	0.40	12.0	26.6	330	7.3	0.67	5.0	90.4	3.2
	1.7	1.9	4.4	250	10.5	6.0	0.57	0.36	11.7	29.5	250	7.4	0.75	4.9	97.4	2.9
	1.7	1.9	4.4	330	10.9	6.8	0.62	0.37	12.2	29.5	330	7.6	0.67	5.3	91.2	3.3
	2.3	3.5	8.1	250	10.6	6.0	0.56	0.34	11.8	31.1	250	7.5	0.75	5.1	97.9	2.9
	2.3	3.5	8.1	330	11.0	6.8	0.61	0.36	12.3	31.1	330	7.7	0.68	5.4	91.7	3.4
40	1.1	0.9	2.0	250	9.9	6.0	0.61	0.43	11.3	22.8	250	8.0	0.76	5.5	99.8	3.1
	1.1	0.9	2.0	330	10.3	6.8	0.66	0.45	11.8	22.8	330	8.2	0.69	5.9	93.1	3.5
	1.7	1.5	3.5	250	10.1	6.0	0.59	0.40	11.5	25.4	250	8.4	0.77	5.8	101.1	3.2
	1.7	1.5	3.5	330	10.5	6.8	0.64	0.41	12.0	25.4	330	8.6	0.69	6.2	94.1	3.6
	2.3	3.0	6.8	250	10.3	6.0	0.59	0.38	11.6	26.8	250	8.6	0.78	6.0	101.8	3.2
	2.3	3.0	6.8	330	10.7	6.8	0.64	0.40	12.0	26.9	330	8.8	0.70	6.4	94.7	3.7
50	1.1	0.6	1.5	250	9.4	6.0	0.63	0.48	11.1	19.5	250	9.0	0.79	6.4	103.3	3.4
	1.1	0.6	1.5	330	9.8	6.7	0.69	0.50	11.6	19.5	330	9.2	0.71	6.8	95.8	3.8
	1.7	1.3	2.9	250	9.7	6.0	0.62	0.45	11.3	21.7	250	9.4	0.80	6.7	104.8	3.5
	1.7	1.3	2.9	330	10.1	6.8	0.67	0.47	11.7	21.7	330	9.6	0.72	7.2	97.0	3.9
	2.3	2.6	6.0	250	9.9	6.0	0.61	0.43	11.3	23.0	250	9.6	0.80	6.9	105.6	3.5
	2.3	2.6	6.0	330	10.3	6.8	0.66	0.45	11.8	23.0	330	9.8	0.72	7.4	97.6	4.0
60	1.1	0.5	1.2	250	9.0	5.9	0.65	0.54	10.8	16.5	250	9.9	0.81	7.2	106.8	3.6
	1.1	0.5	1.2	330	9.4	6.7	0.71	0.57	11.3	16.5	330	10.2	0.73	7.7	98.5	4.1
	1.7	1.1	2.5	250	9.3	5.9	0.64	0.50	11.0	18.5	250	10.4	0.82	7.6	108.4	3.7
	1.7	1.1	2.5	330	9.7	6.7	0.69	0.52	11.5	18.5	330	10.6	0.74	8.1	99.8	4.2
	2.3	2.3	5.4	250	9.5	6.0	0.63	0.48	11.1	19.6	250	10.6	0.83	7.8	109.3	3.7
	2.3	2.3	5.4	330	9.8	6.7	0.69	0.50	11.6	19.6	330	10.9	0.75	8.3	100.5	4.3
70	1.1	0.4	0.9	250	8.5	5.8	0.68	0.61	10.6	14.0	250	10.8	0.84	8.0	110.1	3.8
	1.1	0.4	0.9	330	8.8	6.5	0.74	0.63	11.0	14.0	330	11.1	0.75	8.5	101.1	4.3
	1.7	1.0	2.3	250	8.8	5.8	0.66	0.56	10.7	15.6	250	11.3	0.85	8.4	111.9	3.9
	1.7	1.0	2.3	330	9.2	6.6	0.72	0.59	11.2	15.6	330	11.6	0.77	9.0	102.5	4.4
	2.3	2.1	4.9	250	9.1	5.9	0.65	0.53	10.9	17.1	250	11.4	0.85	8.5	112.1	3.9
	2.3	2.1	4.9	330	9.5	6.7	0.71	0.55	11.3	17.1	330	11.6	0.77	9.0	102.7	4.4
80	1.1	0.3	0.8	250	8.0	5.6	0.70	0.67	10.3	11.8	250	11.7	0.87	8.7	113.3	4.0
	1.1	0.3	0.8	330	8.3	6.3	0.77	0.70	10.7	11.8	330	12.0	0.78	9.3	103.6	4.5
	1.7	0.9	2.1	250	8.3	5.7	0.69	0.63	10.5	13.2	250	12.2	0.88	9.1	115.1	4.0
	1.7	0.9	2.1	330	8.6	6.5	0.75	0.66	10.9	13.2	330	12.5	0.79	9.8	105.0	4.6
	2.3	2.0	4.6	250	8.6	5.8	0.67	0.59	10.6	14.4	250	12.2	0.88	9.2	115.4	4.1
	2.3	2.0	4.6	330	8.9	6.5	0.73	0.62	11.1	14.4	330	12.5	0.79	9.8	105.2	4.6
85	1.1	0.3	0.7	250	7.7	5.5	0.71	0.7	10.1	11.0	250	12.0	0.88	9.0	114.5	4.0
	1.1	0.3	0.7	330	8.0	6.2	0.78	0.73	10.5	11.0	330	12.3	0.8	9.6	104.6	4.6
	1.7	0.9	2.0	250	8.0	5.6	0.70	0.67	10.3	12.1	250	12.6	0.9	9.5	116.5	4.1
	1.7	0.9	2.0	330	8.4	6.4	0.76	0.69	10.7	12.1	330	12.9	0.8	10.1	106.1	4.7
	2.3	1.9	4.4	250	8.3	5.7	0.69	0.63	10.5	13.3	250	12.6	0.9	9.5	116.8	4.1
	2.3	1.9	4.4	330	8.7	6.5	0.75	0.65	10.9	13.3	330	12.9	0.8	10.2	106.3	4.7
90	1.1	0.3	0.6	250	7.5	5.4	0.72	0.73	10.0	10.2	250	12.3	0.89	9.3	115.7	4.1
	1.1	0.3	0.6	330	7.8	6.2	0.79	0.76	10.4	10.2	330	12.6	0.80	9.9	105.5	4.6
	1.7	0.8	1.9	250	7.7	5.5	0.71	0.70	10.1	11.1	250	12.9	0.91	9.8	117.9	4.2
	1.7	0.8	1.9	330	8.1	6.3	0.78	0.73	10.6	11.1	330	13.3	0.82	10.5	107.2	4.8
	2.3	1.8	4.3	250	8.0	5.6	0.70	0.66	10.3	12.1	250	13.0	0.91	9.9	118.2	4.2
	2.3	1.8	4.3	330	8.4	6.4	0.76	0.69	10.7	12.1	330	13.3	0.82	10.5	107.4	4.8
100	1.1	0.2	0.6	250	6.8	5.1	0.76	0.82	9.6	8.2	Operation not recommended					
	1.1	0.2	0.6	330	7.0	5.8	0.82	0.86	10.0	8.2						
	1.7	0.8	1.7	250	7.1	5.3	0.74	0.78	9.8	9.2						
	1.7	0.8	1.7	330	7.4	6.0	0.81	0.81	10.2	9.2						
	2.3	1.7	4.0	250	7.3	5.4	0.73	0.75	9.9	9.7						
	2.3	1.7	4.0	330	7.6	6.1	0.80	0.78	10.3	9.7						
110	1.1	0.2	0.5	250	6.1	4.8	0.79	0.90	9.2	6.8						
	1.1	0.2	0.5	330	6.3	5.4	0.85	0.94	9.5	6.8						
	1.7	0.7	1.6	250	6.5	5.0	0.77	0.86	9.4	7.6						
	1.7	0.7	1.6	330	6.8	5.6	0.84	0.89	9.8	7.6						
	2.3	1.6	3.8	250	6.7	5.1	0.76	0.83	9.5	8.0						
	2.3	1.6	3.8	330	7.0	5.8	0.83	0.87	9.9	8.0						
120	1.1	0.2	0.4	250	5.4	4.4	0.82	0.98	8.7	5.5						
	1.1	0.2	0.4	330	5.6	5.0	0.89	1.02	9.1	5.5						
	1.7	0.7	1.6	250	5.8	4.6	0.80	0.94	9.0	6.2						
	1.7	0.7	1.6	330	6.0	5.2	0.87	0.98	9.4	6.2						
	2.3	1.6	3.6	250	6.0	4.7	0.79	0.91	9.1	6.5						
	2.3	1.6	3.6	330	6.2	5.4	0.86	0.95	9.5	6.5						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 012

400 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	3.0	8.5	19.6	Operation not recommended							300	8.5	0.98	5.3	96.2	2.5
	3.0	8.5	19.6								400	8.7	0.88	5.7	90.2	2.9
30	1.5	1.9	4.3	300	14.2	8.2	0.58	0.55	16.1	25.8	300	9.3	1.00	6.0	98.6	2.7
	1.5	1.9	4.3	400	14.8	9.3	0.63	0.57	16.8	25.8	400	9.5	0.90	6.4	91.9	3.1
	2.3	3.6	8.4	300	14.3	8.2	0.58	0.51	16.1	27.9	300	9.6	1.01	6.3	99.7	2.8
	2.3	3.6	8.4	400	14.9	9.3	0.63	0.53	16.7	27.9	400	9.9	0.91	6.8	92.8	3.2
	3.0	6.7	15.5	300	14.3	8.2	0.58	0.50	16.0	28.8	300	9.8	1.02	6.5	100.4	2.8
	3.0	6.7	15.5	400	14.9	9.3	0.63	0.52	16.6	28.8	400	10.1	0.92	7.0	93.3	3.2
40	1.5	1.4	3.2	300	14.0	8.1	0.58	0.61	16.0	22.9	300	10.6	1.04	7.1	102.6	3.0
	1.5	1.4	3.2	400	14.5	9.2	0.63	0.63	16.7	22.9	400	10.8	0.93	7.6	95.0	3.4
	2.3	3.0	6.9	300	14.2	8.2	0.58	0.57	16.1	25.1	300	11.0	1.05	7.6	104.1	3.1
	2.3	3.0	6.9	400	14.8	9.3	0.63	0.59	16.8	25.1	400	11.3	0.94	8.1	96.2	3.5
	3.0	5.7	13.1	300	14.3	8.2	0.58	0.54	16.1	26.2	300	11.3	1.06	7.8	104.9	3.1
	3.0	5.7	13.1	400	14.8	9.3	0.63	0.57	16.8	26.2	400	11.6	0.95	8.3	96.8	3.6
50	1.5	1.1	2.5	300	13.5	7.9	0.58	0.67	15.8	20.1	300	11.9	1.08	8.3	106.8	3.2
	1.5	1.1	2.5	400	14.1	8.9	0.63	0.70	16.5	20.1	400	12.2	0.97	8.9	98.2	3.7
	2.3	2.6	6.0	300	13.9	8.0	0.58	0.62	16.0	22.2	300	12.5	1.09	8.9	108.6	3.4
	2.3	2.6	6.0	400	14.4	9.1	0.63	0.65	16.7	22.2	400	12.8	0.98	9.5	99.6	3.8
	3.0	5.0	11.5	300	14.0	8.1	0.58	0.60	16.1	23.3	300	12.8	1.10	9.1	109.6	3.4
	3.0	5.0	11.5	400	14.6	9.2	0.63	0.63	16.7	23.3	400	13.1	0.99	9.8	100.4	3.9
60	1.5	0.9	2.1	300	12.9	7.6	0.59	0.74	15.5	17.4	300	13.3	1.11	9.6	111.1	3.5
	1.5	0.9	2.1	400	13.5	8.6	0.64	0.77	16.1	17.4	400	13.6	1.00	10.2	101.5	4.0
	2.3	2.3	5.3	300	13.4	7.8	0.58	0.69	15.7	19.3	300	14.0	1.13	10.2	113.1	3.6
	2.3	2.3	5.3	400	13.9	8.8	0.63	0.72	16.4	19.3	400	14.3	1.02	10.8	103.1	4.1
	3.0	4.5	10.3	300	13.6	7.9	0.58	0.67	15.8	20.4	300	14.3	1.14	10.5	114.2	3.7
	3.0	4.5	10.3	400	14.1	8.9	0.63	0.69	16.5	20.4	400	14.7	1.03	11.2	104.0	4.2
70	1.5	0.8	1.8	300	12.2	7.3	0.60	0.82	15.0	14.9	300	14.7	1.15	10.8	115.3	3.7
	1.5	0.8	1.8	400	12.7	8.3	0.65	0.85	15.6	14.9	400	15.0	1.04	11.5	104.8	4.2
	2.3	2.1	4.8	300	12.5	7.4	0.59	0.77	15.2	16.3	300	15.4	1.18	11.4	117.6	3.8
	2.3	2.1	4.8	400	13.1	8.4	0.64	0.80	15.8	16.3	400	15.8	1.06	12.2	106.5	4.4
	3.0	4.1	9.5	300	12.7	7.5	0.59	0.75	15.3	17.0	300	15.8	1.19	11.7	118.8	3.9
	3.0	4.1	9.5	400	13.3	8.5	0.64	0.78	15.9	17.0	400	16.2	1.07	12.5	107.5	4.4
80	1.5	0.7	1.5	300	11.4	7.0	0.61	0.90	14.5	12.7	300	16.0	1.20	11.9	119.4	3.9
	1.5	0.7	1.5	400	11.9	7.9	0.67	0.94	15.1	12.7	400	16.4	1.08	12.7	108.0	4.5
	2.3	1.9	4.4	300	11.8	7.1	0.60	0.85	14.7	13.9	300	16.8	1.22	12.6	121.7	4.0
	2.3	1.9	4.4	400	12.3	8.0	0.65	0.88	15.3	13.9	400	17.2	1.10	13.4	109.8	4.6
	3.0	3.8	8.8	300	12.0	7.2	0.60	0.83	14.8	14.5	300	17.2	1.24	12.9	123.0	4.1
	3.0	3.8	8.8	400	12.5	8.1	0.65	0.86	15.4	14.5	400	17.6	1.11	13.8	110.7	4.6
85	1.5	0.6	1.5	300	10.9	6.8	0.62	0.9	14.2	11.7	300	16.6	1.22	12.5	121.3	4.0
	1.5	0.6	1.5	400	11.4	7.7	0.68	0.98	14.7	11.7	400	17.0	1.1	13.3	109.4	4.6
	2.3	1.8	4.2	300	11.4	6.9	0.61	0.89	14.4	12.8	300	17.4	1.3	13.1	123.6	4.1
	2.3	1.8	4.2	400	11.9	7.9	0.66	0.93	15.0	12.8	400	17.8	1.1	14.0	111.2	4.6
	3.0	3.7	8.5	300	11.6	7.0	0.60	0.87	14.5	13.4	300	17.7	1.3	13.4	124.8	4.1
	3.0	3.7	8.5	400	12.1	7.9	0.66	0.90	15.1	13.4	400	18.2	1.1	14.3	112.1	4.7
90	1.5	0.6	1.4	300	10.5	6.7	0.63	0.99	13.9	10.7	300	17.3	1.24	13.0	123.3	4.1
	1.5	0.6	1.4	400	10.9	7.5	0.69	1.03	14.4	10.7	400	17.7	1.12	13.9	110.9	4.6
	2.3	1.8	4.1	300	11.0	6.8	0.62	0.93	14.1	11.7	300	18.0	1.28	13.6	125.5	4.1
	2.3	1.8	4.1	400	11.4	7.7	0.67	0.97	14.7	11.7	400	18.4	1.15	14.5	112.6	4.7
	3.0	3.6	8.2	300	11.2	6.8	0.61	0.91	14.3	12.3	300	18.3	1.29	13.9	126.6	4.2
	3.0	3.6	8.2	400	11.6	7.7	0.67	0.95	14.8	12.3	400	18.8	1.16	14.8	113.5	4.7
100	1.5	0.5	1.2	300	9.5	6.4	0.67	1.07	13.2	8.9	Operation not recommended					
	1.5	0.5	1.2	400	9.9	7.2	0.72	1.12	13.8	8.9						
	2.3	1.7	3.8	300	10.1	6.5	0.65	1.02	13.5	9.8						
	2.3	1.7	3.8	400	10.5	7.3	0.70	1.06	14.1	9.8						
	3.0	3.3	7.7	300	10.4	6.6	0.64	1.00	13.8	10.4						
	3.0	3.3	7.7	400	10.8	7.5	0.69	1.04	14.3	10.4						
110	1.5	0.5	1.1	300	8.5	6.0	0.71	1.17	12.5	7.3						
	1.5	0.5	1.1	400	8.9	6.8	0.77	1.22	13.1	7.3						
	2.3	1.6	3.6	300	9.1	6.2	0.68	1.12	12.9	8.1						
	2.3	1.6	3.6	400	9.4	7.0	0.74	1.16	13.4	8.1						
	3.0	3.2	7.3	300	9.4	6.3	0.67	1.09	13.1	8.6						
	3.0	3.2	7.3	400	9.8	7.1	0.73	1.14	13.7	8.6						
120	1.5	0.4	1.0	300	7.5	5.7	0.76	1.27	11.8	5.9						
	1.5	0.4	1.0	400	7.8	6.4	0.82	1.32	12.3	5.9						
	2.3	1.5	3.4	300	8.0	5.8	0.73	1.22	12.2	6.6						
	2.3	1.5	3.4	400	8.3	6.6	0.79	1.27	12.7	6.6						
	3.0	3.0	7.0	300	8.3	5.9	0.71	1.19	12.4	7.0						
	3.0	3.0	7.0	400	8.7	6.7	0.77	1.24	12.9	7.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 015

525 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	3.8	4.1	9.5	Operation not recommended							395	9.5	1.07	6.1	92	2.62
	3.8	4.1	9.5								525	9.8	0.96	6.5	87	2.98
30	1.9	1.0	2.3	395	17.3	10.8	0.62	0.61	19.4	28.4	395	10.6	1.09	7.1	95	2.84
	1.9	1.0	2.3	525	18.1	12.2	0.67	0.64	20.2	28.4	525	10.9	0.98	7.5	89	3.24
	2.8	1.8	4.3	395	17.5	10.8	0.62	0.56	19.4	31.1	395	11.1	1.11	7.5	96	2.94
	2.8	1.8	4.3	525	18.2	12.2	0.67	0.59	20.2	31.1	525	11.4	0.99	8.0	90	3.35
	3.8	3.3	7.7	395	17.5	10.8	0.62	0.54	19.4	32.2	395	11.3	1.11	7.7	97	2.99
	3.8	3.3	7.7	525	18.3	12.2	0.67	0.57	20.2	32.2	525	11.6	1.00	8.2	90	3.41
40	1.9	0.8	1.8	395	17.0	10.6	0.63	0.68	19.3	24.8	395	12.3	1.13	8.5	99	3.18
	1.9	0.8	1.8	525	17.7	12.0	0.68	0.71	20.1	24.8	525	12.6	1.02	9.1	92	3.62
	2.8	1.6	3.6	395	17.2	10.7	0.62	0.63	19.4	27.3	395	12.8	1.14	9.0	100	3.29
	2.8	1.6	3.6	525	18.0	12.1	0.68	0.66	20.2	27.3	525	13.1	1.03	9.7	93	3.75
	3.8	2.9	6.6	395	17.4	10.8	0.62	0.60	19.4	28.8	395	13.1	1.15	9.3	101	3.35
	3.8	2.9	6.6	525	18.1	12.2	0.67	0.63	20.2	28.8	525	13.5	1.03	10.0	94	3.82
50	1.9	0.6	1.5	395	16.4	10.4	0.63	0.76	19.0	21.6	395	13.9	1.16	10.0	103	3.50
	1.9	0.6	1.5	525	17.1	11.8	0.69	0.79	19.8	21.6	525	14.2	1.05	10.7	95	3.99
	2.8	1.4	3.1	395	16.8	10.6	0.63	0.71	19.2	23.8	395	14.6	1.18	10.6	104	3.63
	2.8	1.4	3.1	525	17.5	12.0	0.68	0.74	20.0	23.8	525	14.9	1.06	11.3	96	4.13
	3.8	2.5	5.8	395	17.0	10.6	0.63	0.68	19.3	25.0	395	14.9	1.18	10.9	105	3.69
	3.8	2.5	5.8	525	17.7	12.0	0.68	0.71	20.1	25.0	525	15.3	1.06	11.7	97	4.21
60	1.9	0.6	1.3	395	15.7	10.2	0.65	0.84	18.6	18.7	395	15.5	1.20	11.5	106	3.81
	1.9	0.6	1.3	525	16.4	11.5	0.70	0.88	19.4	18.7	525	15.9	1.07	12.2	98	4.34
	2.8	1.2	2.8	395	16.2	10.4	0.64	0.79	18.9	20.5	395	16.3	1.21	12.1	108	3.94
	2.8	1.2	2.8	525	16.9	11.7	0.69	0.82	19.7	20.5	525	16.7	1.09	13.0	99	4.50
	3.8	2.3	5.3	395	16.4	10.4	0.63	0.76	19.0	21.6	395	16.7	1.22	12.5	109	4.02
	3.8	2.3	5.3	525	17.1	11.8	0.69	0.79	19.8	21.6	525	17.1	1.09	13.3	100	4.58
70	1.9	0.5	1.1	395	15.2	10.1	0.66	0.93	18.3	16.2	395	17.1	1.22	12.9	110	4.10
	1.9	0.5	1.1	525	15.8	11.4	0.72	0.97	19.1	16.3	525	17.5	1.10	13.8	101	4.68
	2.8	1.1	2.5	395	15.5	10.1	0.65	0.88	18.5	17.6	395	18.0	1.24	13.7	112	4.25
	2.8	1.1	2.5	525	16.1	11.4	0.71	0.91	19.2	17.6	525	18.4	1.11	14.6	102	4.85
	3.8	2.1	4.9	395	15.8	10.2	0.65	0.85	18.6	18.6	395	18.4	1.25	14.1	113	4.33
	3.8	2.1	4.9	525	16.4	11.5	0.70	0.88	19.4	18.6	525	18.8	1.12	15.0	103	4.94
80	1.9	0.4	1.0	395	14.3	9.8	0.68	1.03	17.8	13.9	395	18.7	1.25	14.3	114	4.38
	1.9	0.4	1.0	525	14.9	11.1	0.74	1.07	18.5	13.9	525	19.2	1.12	15.3	104	5.00
	2.8	1.0	2.4	395	14.7	9.8	0.67	0.97	18.0	15.1	395	19.6	1.27	15.1	116	4.54
	2.8	1.0	2.4	525	15.3	11.1	0.73	1.01	18.7	15.1	525	20.1	1.14	16.2	105	5.18
	3.8	2.0	4.6	395	14.9	9.9	0.66	0.94	18.2	15.9	395	20.1	1.27	15.6	117	4.62
	3.8	2.0	4.6	525	15.6	11.2	0.72	0.98	18.9	15.9	525	20.6	1.14	16.6	106	5.27
85	1.9	0.4	0.9	395	13.8	9.6	0.70	1.1	17.5	12.8	395	19.5	1.26	15.0	116	4.52
	1.9	0.4	0.9	525	14.4	10.9	0.76	1.13	18.2	12.8	525	19.9	1.13	16.0	105	5.15
	2.8	1.0	2.3	395	14.2	9.7	0.68	1.02	17.7	13.9	395	20.4	1.28	15.9	118	4.68
	2.8	1.0	2.3	525	14.8	11.0	0.74	1.07	18.4	13.9	525	20.9	1.15	16.9	107	5.34
	3.8	1.9	4.4	395	14.5	9.8	0.67	0.99	17.9	14.7	395	20.9	1.29	16.3	119	4.77
	3.8	1.9	4.4	525	15.1	11.1	0.73	1.03	18.6	14.7	525	21.4	1.15	17.4	108	5.43
90	1.9	0.4	0.9	395	13.3	9.5	0.71	1.14	17.2	11.7	395	20.2	1.28	15.7	117	4.65
	1.9	0.4	0.9	525	13.9	10.7	0.77	1.19	18.0	11.7	525	20.7	1.15	16.8	107	5.30
	2.8	1.0	2.2	395	13.7	9.5	0.69	1.08	17.4	12.8	395	21.2	1.29	16.6	120	4.82
	2.8	1.0	2.2	525	14.3	10.8	0.75	1.12	18.1	12.8	525	21.7	1.16	17.7	108	5.49
	3.8	1.9	4.3	395	14.1	9.6	0.69	1.04	17.6	13.5	395	21.7	1.30	17.1	121	4.90
	3.8	1.9	4.3	525	14.6	10.9	0.74	1.08	18.3	13.5	525	22.2	1.17	18.2	109	5.59
100	1.9	0.4	0.8	395	12.4	9.2	0.74	1.25	16.6	9.9	Operation not recommended					
	1.9	0.4	0.8	525	12.9	10.4	0.80	1.31	17.3	9.9						
	2.8	0.9	2.1	395	12.8	9.2	0.72	1.19	16.8	10.8						
	2.8	0.9	2.1	525	13.3	10.4	0.78	1.23	17.5	10.8						
	3.8	1.8	4.1	395	13.1	9.3	0.71	1.15	17.0	11.4						
	3.8	1.8	4.1	525	13.6	10.5	0.77	1.20	17.7	11.4						
110	1.9	0.3	0.7	395	11.3	8.8	0.78	1.37	16.0	8.3						
	1.9	0.3	0.7	525	11.8	10.0	0.84	1.43	16.7	8.3						
	2.8	0.8	1.9	395	11.8	8.9	0.75	1.30	16.2	9.0						
	2.8	0.8	1.9	525	12.2	10.0	0.82	1.36	16.9	9.0						
	3.8	1.7	3.9	395	12.1	9.0	0.74	1.27	16.4	9.5						
	3.8	1.7	3.9	525	12.6	10.2	0.81	1.32	17.1	9.5						
120	1.9	0.3	0.7	395	10.3	8.5	0.82	1.50	15.5	6.9						
	1.9	0.3	0.7	525	10.8	9.6	0.89	1.56	16.1	6.9						
	2.8	0.8	1.8	395	10.7	8.5	0.79	1.43	15.6	7.5						
	2.8	0.8	1.8	525	11.2	9.6	0.86	1.48	16.2	7.5						
	3.8	1.6	3.7	395	11.0	8.6	0.78	1.39	15.8	7.9						
	3.8	1.6	3.7	525	11.5	9.8	0.85	1.45	16.4	7.9						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 018

600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	4.5	7.2	16.7	Operation not recommended							450	11.2	1.25	7.2	93	2.61
	4.5	7.2	16.7								600	11.4	1.13	7.6	88	2.98
30	2.3	2.1	4.9	450	22.1	14.2	0.64	0.72	24.5	30.7	450	12.4	1.29	8.2	96	2.83
	2.3	2.1	4.9	600	23.0	16.1	0.70	0.75	25.5	30.8	600	12.7	1.16	8.8	90	3.22
	3.4	3.4	7.9	450	22.9	14.4	0.63	0.64	25.1	35.8	450	12.9	1.30	8.7	97	2.92
	3.4	3.4	7.9	600	23.9	16.3	0.68	0.67	26.1	35.8	600	13.3	1.17	9.3	90	3.33
	4.5	5.9	13.7	450	23.3	14.4	0.62	0.60	25.3	39.0	450	13.2	1.31	9.0	97	2.97
	4.5	5.9	13.7	600	24.3	16.3	0.67	0.62	26.4	39.0	600	13.5	1.17	9.6	91	3.38
40	2.3	1.7	3.9	450	21.1	13.9	0.66	0.82	23.9	25.6	450	14.3	1.33	9.9	99	3.15
	2.3	1.7	3.9	600	22.0	15.7	0.72	0.86	24.9	25.6	600	14.7	1.20	10.6	93	3.59
	3.4	2.9	6.7	450	21.9	14.2	0.65	0.75	24.4	29.3	450	15.0	1.35	10.5	101	3.26
	3.4	2.9	6.7	600	22.8	16.0	0.70	0.78	25.4	29.3	600	15.3	1.21	11.2	94	3.72
	4.5	5.1	11.8	450	22.5	14.5	0.64	0.71	24.9	31.9	450	15.3	1.35	10.8	102	3.32
	4.5	5.1	11.8	600	23.5	16.4	0.70	0.74	25.9	31.9	600	15.7	1.22	11.6	94	3.78
50	2.3	1.4	3.3	450	20.4	13.7	0.67	0.93	23.5	21.9	450	16.3	1.37	11.7	103	3.47
	2.3	1.4	3.3	600	21.2	15.5	0.73	0.97	24.5	22.0	600	16.6	1.23	12.5	96	3.96
	3.4	2.6	5.9	450	20.8	13.8	0.66	0.85	23.7	24.4	450	17.0	1.39	12.4	105	3.60
	3.4	2.6	5.9	600	21.7	15.6	0.72	0.89	24.7	24.4	600	17.4	1.25	13.2	97	4.10
	4.5	4.6	10.6	450	21.2	13.9	0.66	0.81	23.9	26.1	450	17.4	1.39	12.7	106	3.67
	4.5	4.6	10.6	600	22.1	15.8	0.72	0.85	24.9	26.1	600	17.9	1.25	13.6	98	4.18
60	2.3	1.3	2.9	450	19.3	13.2	0.68	1.04	22.8	18.6	450	18.2	1.41	13.4	107	3.79
	2.3	1.3	2.9	600	20.1	14.9	0.74	1.08	23.8	18.6	600	18.6	1.26	14.3	99	4.32
	3.4	2.3	5.3	450	19.8	13.4	0.68	0.96	23.0	20.6	450	19.1	1.42	14.2	109	3.93
	3.4	2.3	5.3	600	20.6	15.1	0.73	1.00	24.0	20.6	600	19.6	1.28	15.2	100	4.49
	4.5	4.2	9.6	450	20.1	13.5	0.67	0.92	23.3	21.9	450	19.6	1.43	14.7	110	4.01
	4.5	4.2	9.6	600	21.0	15.3	0.73	0.96	24.2	21.9	600	20.1	1.29	15.7	101	4.58
70	2.3	1.1	2.6	450	18.2	12.7	0.69	1.15	22.1	15.8	450	20.2	1.44	15.2	112	4.11
	2.3	1.1	2.6	600	19.0	14.3	0.76	1.20	23.1	15.8	600	20.7	1.29	16.2	102	4.68
	3.4	2.1	4.9	450	18.7	12.8	0.69	1.07	22.3	17.4	450	21.2	1.46	16.1	114	4.27
	3.4	2.1	4.9	600	19.4	14.5	0.75	1.12	23.2	17.4	600	21.7	1.31	17.2	103	4.86
	4.5	3.9	8.9	450	19.1	13.0	0.68	1.03	22.6	18.4	450	21.7	1.46	16.6	115	4.35
	4.5	3.9	8.9	600	19.8	14.7	0.74	1.08	23.5	18.4	600	22.3	1.32	17.8	104	4.96
80	2.3	1.0	2.3	450	17.0	12.1	0.71	1.28	21.4	13.3	450	22.1	1.47	17.0	116	4.41
	2.3	1.0	2.3	600	17.7	13.7	0.77	1.33	22.3	13.3	600	22.7	1.32	18.2	105	5.03
	3.4	2.0	4.5	450	17.5	12.3	0.70	1.20	21.6	14.7	450	23.3	1.49	18.0	118	4.59
	3.4	2.0	4.5	600	18.3	13.9	0.76	1.25	22.5	14.7	600	23.9	1.34	19.3	107	5.23
	4.5	3.6	8.3	450	17.9	12.5	0.69	1.15	21.9	15.5	450	23.9	1.50	18.6	119	4.68
	4.5	3.6	8.3	600	18.7	14.1	0.76	1.20	22.8	15.5	600	24.5	1.35	19.9	108	5.34
85	2.3	1.0	2.2	450	16.4	11.8	0.72	1.35	21.0	12.2	450	23.1	1.49	17.9	118	4.56
	2.3	1.0	2.2	600	17.1	13.3	0.78	1.40	21.9	12.2	600	23.7	1.33	19.1	107	5.20
	3.4	1.9	4.4	450	16.9	12.0	0.71	1.26	21.2	13.5	450	24.3	1.50	19.0	120	4.74
	3.4	1.9	4.4	600	17.6	13.5	0.77	1.31	22.1	13.5	600	24.9	1.35	20.3	108	5.41
	4.5	3.5	8.1	450	17.3	12.2	0.70	1.22	21.5	14.3	450	25.0	1.51	19.6	121	4.84
	4.5	3.5	8.1	600	18.0	13.8	0.76	1.27	22.4	14.3	600	25.6	1.36	20.9	110	5.51
90	2.3	0.9	2.1	450	15.8	11.5	0.73	1.42	20.6	11.1	450	24.1	1.50	18.8	120	4.71
	2.3	0.9	2.1	600	16.4	13.0	0.79	1.48	21.5	11.1	600	24.7	1.35	20.1	108	5.37
	3.4	1.8	4.2	450	16.3	11.7	0.71	1.33	20.8	12.3	450	25.4	1.52	20.0	122	4.89
	3.4	1.8	4.2	600	17.0	13.2	0.78	1.38	21.7	12.3	600	26.0	1.37	21.3	110	5.58
	4.5	3.4	7.9	450	16.7	11.9	0.71	1.28	21.1	13.0	450	26.1	1.53	20.6	124	4.99
	4.5	3.4	7.9	600	17.4	13.4	0.77	1.34	22.0	13.0	600	26.7	1.38	22.0	111	5.69
100	2.3	0.9	2.0	450	14.4	10.8	0.75	1.57	19.8	9.2	Operation not recommended					
	2.3	0.9	2.0	600	15.0	12.2	0.82	1.63	20.6	9.2						
	3.4	1.7	4.0	450	15.0	11.0	0.74	1.48	20.0	10.1						
	3.4	1.7	4.0	600	15.6	12.5	0.80	1.54	20.8	10.1						
	4.5	3.2	7.4	450	15.4	11.2	0.73	1.43	20.3	10.8						
	4.5	3.2	7.4	600	16.0	12.7	0.79	1.49	21.1	10.8						
110	2.3	0.8	1.8	450	12.9	10.1	0.78	1.74	18.8	7.4						
	2.3	0.8	1.8	600	13.4	11.4	0.85	1.81	19.6	7.4						
	3.4	1.6	3.8	450	13.5	10.3	0.76	1.64	19.1	8.2						
	3.4	1.6	3.8	600	14.0	11.6	0.83	1.71	19.9	8.2						
	4.5	3.1	7.1	450	13.9	10.5	0.75	1.59	19.4	8.8						
	4.5	3.1	7.1	600	14.5	11.9	0.82	1.65	20.2	8.8						
120	2.3	0.7	1.7	450	11.2	9.2	0.82	1.92	17.8	5.8						
	2.3	0.7	1.7	600	11.6	10.4	0.89	2.00	18.5	5.8						
	3.4	1.6	3.6	450	11.8	9.5	0.80	1.82	18.1	6.5						
	3.4	1.6	3.6	600	12.3	10.7	0.87	1.89	18.8	6.5						
	4.5	2.9	6.8	450	12.3	9.7	0.79	1.77	18.4	7.0						
	4.5	2.9	6.8	600	12.8	11.0	0.86	1.84	19.1	7.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 024

800 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	6.0	8.5	19.6	Operation not recommended							640	15.5	1.91	9.5	92	2.39
	6.0	8.5	19.6								850	15.9	1.71	10.1	87	2.72
30	3.0	2.2	5.2	640	27.7	17.4	0.63	1.12	31.5	24.8	640	17.2	1.93	11.0	95	2.61
	3.0	2.2	5.2	850	28.9	19.7	0.68	1.16	32.8	24.8	850	17.6	1.74	11.8	89	2.98
	4.5	4.0	9.3	640	28.2	17.5	0.62	1.05	31.8	26.9	640	18.0	1.95	11.7	96	2.70
	4.5	4.0	9.3	850	29.4	19.8	0.67	1.09	33.1	26.9	850	18.4	1.75	12.5	90	3.08
	6.0	7.2	16.7	640	28.5	17.5	0.62	1.02	31.9	28.0	640	18.4	1.95	12.1	97	2.76
	6.0	7.2	16.7	850	29.6	19.8	0.67	1.06	33.2	28.0	850	18.8	1.76	12.9	91	3.14
40	3.0	1.9	4.4	640	26.9	17.1	0.64	1.23	31.1	21.9	640	19.9	1.98	13.4	99	2.94
	3.0	1.9	4.4	850	28.0	19.4	0.69	1.28	32.4	21.9	850	20.4	1.78	14.4	92	3.36
	4.5	3.6	8.2	640	27.5	17.3	0.63	1.15	31.4	24.0	640	20.8	2.00	14.3	100	3.06
	4.5	3.6	8.2	850	28.7	19.6	0.68	1.19	32.7	24.0	850	21.3	1.79	15.3	93	3.49
	6.0	6.4	14.9	640	27.8	17.4	0.63	1.11	31.5	25.1	640	21.3	2.01	14.7	101	3.12
	6.0	6.4	14.9	850	28.9	19.7	0.68	1.16	32.8	25.1	850	21.9	1.80	15.7	94	3.55
50	3.0	1.7	3.9	640	26.2	16.9	0.65	1.36	30.8	19.3	640	22.6	2.03	15.9	103	3.27
	3.0	1.7	3.9	850	27.3	19.1	0.70	1.42	32.1	19.3	850	23.2	1.82	17.0	95	3.72
	4.5	3.2	7.4	640	26.7	17.0	0.64	1.26	31.0	21.1	640	23.7	2.05	16.9	104	3.39
	4.5	3.2	7.4	850	27.8	19.3	0.69	1.32	32.2	21.1	850	24.3	1.84	18.0	96	3.87
	6.0	5.9	13.6	640	27.0	17.1	0.64	1.22	31.1	22.1	640	24.3	2.06	17.4	105	3.46
	6.0	5.9	13.6	850	28.1	19.4	0.69	1.27	32.4	22.1	850	24.9	1.85	18.6	97	3.94
60	3.0	1.5	3.5	640	25.3	16.6	0.66	1.52	30.4	16.7	640	25.3	2.08	18.3	107	3.57
	3.0	1.5	3.5	850	26.3	18.8	0.71	1.58	31.7	16.7	850	25.9	1.87	19.6	98	4.07
	4.5	3.0	6.9	640	25.7	16.7	0.65	1.40	30.5	18.3	640	26.6	2.10	19.4	108	3.70
	4.5	3.0	6.9	850	26.8	18.9	0.70	1.46	31.7	18.3	850	27.2	1.89	20.7	100	4.22
	6.0	5.5	12.6	640	26.1	16.8	0.64	1.35	30.6	19.3	640	27.2	2.12	20.0	109	3.77
	6.0	5.5	12.6	850	27.1	19.0	0.70	1.41	31.9	19.3	850	27.9	1.90	21.4	100	4.30
70	3.0	1.4	3.2	640	24.1	16.2	0.67	1.70	29.9	14.2	640	27.9	2.13	20.7	110	3.84
	3.0	1.4	3.2	850	25.1	18.3	0.73	1.77	31.1	14.2	850	28.6	1.91	22.1	101	4.38
	4.5	2.8	6.4	640	24.6	16.3	0.66	1.57	30.0	15.7	640	29.2	2.16	21.8	112	3.97
	4.5	2.8	6.4	850	25.6	18.4	0.72	1.63	31.2	15.7	850	29.9	1.94	23.3	103	4.53
	6.0	5.2	11.9	640	25.0	16.4	0.66	1.51	30.1	16.6	640	29.9	2.17	22.5	113	4.04
	6.0	5.2	11.9	850	26.0	18.6	0.71	1.57	31.4	16.6	850	30.6	1.95	24.0	103	4.60
80	3.0	1.3	3.0	640	22.9	15.7	0.69	1.91	29.4	12.0	640	30.4	2.18	22.9	114	4.08
	3.0	1.3	3.0	850	23.8	17.8	0.75	1.99	30.6	12.0	850	31.1	1.96	24.4	104	4.65
	4.5	2.6	6.1	640	23.4	15.8	0.67	1.76	29.4	13.3	640	31.7	2.21	24.0	116	4.20
	4.5	2.6	6.1	850	24.4	17.9	0.73	1.84	30.7	13.3	850	32.5	1.99	25.7	105	4.79
	6.0	4.9	11.3	640	23.8	16.0	0.67	1.70	29.6	14.1	640	32.4	2.23	24.6	117	4.26
	6.0	4.9	11.3	850	24.8	18.1	0.73	1.77	30.8	14.1	850	33.1	2.00	26.3	106	4.85
85	3.0	1.3	2.9	640	22.2	15.5	0.70	2.03	29.2	11.0	640	31.5	2.21	23.8	116	4.18
	3.0	1.3	2.9	850	23.1	17.5	0.76	2.12	30.4	11.0	850	32.3	1.98	25.5	105	4.77
	4.5	2.6	5.9	640	22.8	15.6	0.68	1.88	29.2	12.2	640	32.7	2.24	25.0	117	4.29
	4.5	2.6	5.9	850	23.7	17.6	0.74	1.95	30.4	12.2	850	33.5	2.01	26.7	107	4.89
	6.0	4.8	11.0	640	23.2	15.7	0.68	1.80	29.3	12.9	640	33.4	2.25	25.5	118	4.34
	6.0	4.8	11.0	850	24.1	17.8	0.74	1.88	30.5	12.9	850	34.2	2.02	27.2	107	4.95
90	3.0	1.2	2.8	640	21.6	15.3	0.71	2.16	28.9	10.0	640	32.6	2.23	24.8	117	4.28
	3.0	1.2	2.8	850	22.4	17.3	0.77	2.25	30.1	10.0	850	33.4	2.01	26.5	106	4.88
	4.5	2.5	5.8	640	22.2	15.4	0.69	1.99	29.0	11.1	640	33.8	2.26	25.9	119	4.38
	4.5	2.5	5.8	850	23.1	17.4	0.75	2.07	30.1	11.1	850	34.6	2.03	27.6	108	4.99
	6.0	4.7	10.7	640	22.5	15.4	0.69	1.91	29.0	11.8	640	34.4	2.28	26.4	120	4.42
	6.0	4.7	10.7	850	23.4	17.5	0.75	1.99	30.2	11.8	850	35.2	2.05	28.2	108	5.04
100	3.0	1.2	2.7	640	20.2	14.8	0.74	2.44	28.5	8.3	Operation not recommended					
	3.0	1.2	2.7	850	21.0	16.8	0.80	2.54	29.7	8.3						
	4.5	2.4	5.5	640	20.8	14.9	0.72	2.25	28.5	9.2						
	4.5	2.4	5.5	850	21.6	16.9	0.78	2.34	29.7	9.2						
	6.0	4.5	10.3	640	21.1	15.0	0.71	2.16	28.5	9.8						
	6.0	4.5	10.3	850	22.0	17.0	0.77	2.25	29.7	9.8						
110	3.0	1.1	2.5	640	18.8	14.4	0.77	2.77	28.3	6.8						
	3.0	1.1	2.5	850	19.5	16.3	0.84	2.88	29.4	6.8						
	4.5	2.3	5.3	640	19.3	14.4	0.75	2.55	28.1	7.6						
	4.5	2.3	5.3	850	20.1	16.3	0.81	2.66	29.2	7.6						
	6.0	4.3	9.9	640	19.7	14.5	0.74	2.45	28.1	8.0						
	6.0	4.3	9.9	850	20.5	16.4	0.80	2.55	29.3	8.0						
120	3.0	1.0	2.4	640	17.1	13.9	0.81	3.13	27.9	5.5						
	3.0	1.0	2.4	850	17.8	15.7	0.88	3.26	29.0	5.5						
	4.5	2.2	5.1	640	17.8	14.0	0.78	2.89	27.8	6.2						
	4.5	2.2	5.1	850	18.6	15.8	0.85	3.01	28.9	6.2						
	6.0	4.2	9.6	640	18.3	14.1	0.77	2.78	27.9	6.6						
	6.0	4.2	9.6	850	19.1	16.0	0.84	2.89	29.0	6.6						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units. * Performance Data is for 208-230/60/1, 208-230/60/3 and 460/60/3. Consult factory for 265/60/1 performance.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 030

1000 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	7.5	5.0	11.6	Operation not recommended							750	20.0	2.31	12.6	95	2.53
	7.5	5.0	11.6								1000	20.4	2.08	13.4	89	2.89
30	3.8	1.3	2.9	750	33.3	20.3	0.61	1.38	38.0	24.0	750	21.6	2.37	14.0	97	2.67
	3.8	1.3	2.9	1000	34.7	22.9	0.66	1.44	39.5	24.0	1000	22.1	2.13	14.9	90	3.04
	5.6	2.3	5.4	750	33.5	20.2	0.60	1.31	37.9	25.7	750	22.5	2.40	14.7	98	2.75
	5.6	2.3	5.4	1000	34.9	22.8	0.65	1.36	39.5	25.7	1000	23.0	2.15	15.7	91	3.13
	7.5	4.2	9.7	750	33.6	20.0	0.60	1.27	37.9	26.5	750	22.9	2.41	15.1	98	2.79
	7.5	4.2	9.7	1000	35.0	22.7	0.65	1.32	39.4	26.5	1000	23.5	2.16	16.2	92	3.18
40	3.8	1.0	2.4	750	32.6	20.2	0.62	1.51	37.7	21.6	750	24.7	2.45	16.7	100	2.95
	3.8	1.0	2.4	1000	34.0	22.8	0.67	1.57	39.3	21.6	1000	25.3	2.20	17.8	93	3.36
	5.6	2.0	4.7	750	33.1	20.3	0.61	1.42	37.9	23.3	750	25.7	2.48	17.6	102	3.04
	5.6	2.0	4.7	1000	34.5	22.9	0.67	1.48	39.5	23.3	1000	26.4	2.23	18.8	94	3.47
	7.5	3.7	8.6	750	33.7	20.5	0.61	1.38	38.3	24.4	750	26.3	2.49	18.1	102	3.10
	7.5	3.7	8.6	1000	35.1	23.2	0.66	1.44	39.9	24.4	1000	26.9	2.24	19.4	95	3.53
50	3.8	0.9	2.1	750	31.6	19.9	0.63	1.65	37.2	19.2	750	27.8	2.52	19.5	104	3.24
	3.8	0.9	2.1	1000	32.9	22.5	0.68	1.72	38.8	19.2	1000	28.5	2.26	20.8	96	3.69
	5.6	1.8	4.2	750	32.3	20.1	0.62	1.55	37.6	20.9	750	29.1	2.55	20.6	106	3.35
	5.6	1.8	4.2	1000	33.7	22.8	0.68	1.61	39.1	20.9	1000	29.8	2.29	22.0	98	3.82
	7.5	3.4	7.8	750	32.6	20.2	0.62	1.50	37.7	21.7	750	29.8	2.56	21.3	107	3.41
	7.5	3.4	7.8	1000	34.0	22.9	0.67	1.57	39.3	21.7	1000	30.5	2.30	22.7	98	3.89
60	3.8	0.8	1.8	750	30.4	19.4	0.64	1.81	36.6	16.8	750	31.0	2.58	22.4	108	3.52
	3.8	0.8	1.8	1000	31.7	21.9	0.69	1.89	38.1	16.8	1000	31.8	2.32	23.9	99	4.02
	5.6	1.7	3.8	750	31.1	19.6	0.63	1.70	36.9	18.3	750	32.5	2.61	23.7	110	3.65
	5.6	1.7	3.8	1000	32.4	22.2	0.69	1.77	38.4	18.3	1000	33.3	2.34	25.3	101	4.16
	7.5	3.1	7.2	750	31.4	19.7	0.63	1.65	37.0	19.0	750	33.3	2.63	24.4	111	3.71
	7.5	3.1	7.2	1000	32.7	22.3	0.68	1.71	38.5	19.1	1000	34.1	2.36	26.0	102	4.24
70	3.8	0.7	1.6	750	29.0	18.8	0.65	2.00	35.8	14.5	750	34.2	2.64	25.2	112	3.79
	3.8	0.7	1.6	1000	30.2	21.2	0.70	2.08	37.3	14.5	1000	35.1	2.37	26.9	102	4.33
	5.6	1.5	3.6	750	30.0	19.2	0.64	1.87	36.3	16.0	750	35.8	2.68	26.7	114	3.92
	5.6	1.5	3.6	1000	31.2	21.7	0.70	1.95	37.8	16.0	1000	36.7	2.40	28.5	104	4.47
	7.5	2.9	6.7	750	30.4	19.4	0.64	1.81	36.6	16.8	750	36.7	2.70	27.4	115	3.99
	7.5	2.9	6.7	1000	31.7	21.9	0.69	1.89	38.1	16.8	1000	37.6	2.42	29.3	105	4.55
80	3.8	0.7	1.5	750	27.7	18.3	0.66	2.21	35.3	12.5	750	37.3	2.71	28.0	116	4.04
	3.8	0.7	1.5	1000	28.8	20.7	0.72	2.30	36.7	12.5	1000	38.2	2.43	29.9	105	4.60
	5.6	1.4	3.3	750	28.5	18.5	0.65	2.07	35.5	13.7	750	39.0	2.75	29.5	118	4.15
	5.6	1.4	3.3	1000	29.6	21.0	0.71	2.16	37.0	13.7	1000	40.0	2.47	31.5	107	4.74
	7.5	2.7	6.3	750	29.0	18.7	0.65	2.00	35.8	14.5	750	40.2	2.78	30.6	120	4.24
	7.5	2.7	6.3	1000	30.2	21.2	0.70	2.08	37.3	14.5	1000	41.2	2.50	32.6	108	4.84
85	3.8	0.6	1.4	750	26.7	17.8	0.67	2.34	34.7	11.5	750	38.8	2.75	29.3	118	4.14
	3.8	0.6	1.4	1000	27.8	20.1	0.72	2.43	36.1	11.5	1000	39.8	2.5	31.3	107	4.72
	5.6	1.4	3.2	750	27.6	18.2	0.66	2.18	35.1	12.7	750	40.5	2.8	30.8	120	4.24
	5.6	1.4	3.2	1000	28.8	20.6	0.71	2.27	36.5	12.7	1000	41.5	2.5	32.9	108	4.84
	7.5	2.7	6.2	750	28.2	18.4	0.65	2.11	35.4	13.4	750	41.6	2.8	31.7	121	4.30
	7.5	2.7	6.2	1000	29.3	20.8	0.71	2.20	36.8	13.4	1000	42.6	2.5	33.9	109	4.91
90	3.8	0.6	1.4	750	25.7	17.3	0.67	2.46	34.1	10.5	750	40.3	2.79	30.6	120	4.23
	3.8	0.6	1.4	1000	26.8	19.6	0.73	2.56	35.5	10.5	1000	41.3	2.51	32.7	108	4.83
	5.6	1.4	3.1	750	26.8	17.8	0.66	2.30	34.7	11.7	750	42.0	2.85	32.1	122	4.33
	5.6	1.4	3.1	1000	27.9	20.1	0.72	2.39	36.1	11.7	1000	43.0	2.56	34.3	110	4.93
	7.5	2.6	6.0	750	27.3	18.0	0.66	2.22	34.9	12.3	750	42.9	2.88	32.9	123	4.36
	7.5	2.6	6.0	1000	28.5	20.4	0.72	2.31	36.4	12.3	1000	44.0	2.59	35.1	111	4.98
100	3.8	0.6	1.3	750	24.0	16.6	0.69	2.74	33.3	8.7	Operation not recommended					
	3.8	0.6	1.3	1000	24.9	18.8	0.75	2.85	34.7	8.7						
	5.6	1.3	3.0	750	25.1	17.0	0.68	2.56	33.8	9.8						
	5.6	1.3	3.0	1000	26.1	19.3	0.74	2.67	35.2	9.8						
	7.5	2.5	5.7	750	25.6	17.3	0.67	2.48	34.1	10.3						
	7.5	2.5	5.7	1000	26.7	19.6	0.73	2.58	35.5	10.3						
110	3.8	0.5	1.2	750	22.5	16.1	0.72	3.07	33.0	7.4						
	3.8	0.5	1.2	1000	23.5	18.2	0.78	3.19	34.4	7.4						
	5.6	1.2	2.8	750	23.2	16.3	0.70	2.86	33.1	8.1						
	5.6	1.2	2.8	1000	24.2	18.4	0.76	2.98	34.4	8.1						
	7.5	2.4	5.5	750	23.8	16.5	0.69	2.77	33.3	8.6						
	7.5	2.4	5.5	1000	24.8	18.7	0.75	2.88	34.6	8.6						
120	3.8	0.5	1.1	750	20.4	15.2	0.74	3.44	32.2	5.9						
	3.8	0.5	1.1	1000	21.2	17.2	0.81	3.58	33.5	5.9						
	5.6	1.2	2.7	750	21.4	15.6	0.73	3.21	32.4	6.7						
	5.6	1.2	2.7	1000	22.3	17.6	0.79	3.34	33.8	6.7						
	7.5	2.3	5.3	750	22.0	15.8	0.72	3.10	32.6	7.1						
	7.5	2.3	5.3	1000	22.9	17.8	0.78	3.23	33.9	7.1						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 036

1,200 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	9.0	6.4	14.8	Operation not recommended							860	22.6	2.67	14.1	94	2.49
	9.0	6.4	14.8								1150	23.2	2.39	15.1	89	2.84
30	4.5	1.8	4.3	860	39.9	24.2	0.61	1.67	45.6	23.8	860	25.6	2.80	16.6	98	2.68
	4.5	1.8	4.3	1150	41.5	27.4	0.66	1.74	47.4	23.8	1150	26.2	2.51	17.7	91	3.06
	6.8	3.1	7.1	860	40.1	24.3	0.61	1.62	45.5	24.7	860	26.8	2.85	17.6	99	2.76
	6.8	3.1	7.1	1150	41.7	27.5	0.66	1.69	47.4	24.7	1150	27.5	2.56	18.8	92	3.15
	9.0	5.4	12.5	860	40.0	24.3	0.61	1.60	45.5	25.0	860	27.5	2.88	18.2	100	2.80
	9.0	5.4	12.5	1150	41.7	27.5	0.66	1.67	47.3	25.0	1150	28.2	2.59	19.4	93	3.19
40	4.5	1.6	3.6	860	39.2	24.0	0.61	1.80	45.3	21.8	860	30.1	2.98	20.3	102	2.95
	4.5	1.6	3.6	1150	40.8	27.2	0.67	1.87	47.1	21.8	1150	30.8	2.68	21.7	95	3.37
	6.8	2.7	6.2	860	39.7	24.2	0.61	1.71	45.5	23.3	860	31.6	3.05	21.6	104	3.04
	6.8	2.7	6.2	1150	41.4	27.4	0.66	1.78	47.4	23.3	1150	32.4	2.74	23.1	96	3.47
	9.0	4.8	11.1	860	39.9	24.3	0.61	1.67	45.6	23.9	860	32.4	3.08	22.3	105	3.09
	9.0	4.8	11.1	1150	41.6	27.4	0.66	1.74	47.4	23.9	1150	33.2	2.77	23.8	97	3.52
50	4.5	1.4	3.2	860	38.0	23.6	0.62	1.98	44.7	19.2	860	34.5	3.16	24.1	107	3.20
	4.5	1.4	3.2	1150	39.5	26.7	0.68	2.06	46.5	19.2	1150	35.4	2.84	25.7	98	3.65
	6.8	2.4	5.6	860	38.8	23.9	0.62	1.85	45.1	21.0	860	36.3	3.23	25.6	109	3.30
	6.8	2.4	5.6	1150	40.4	27.0	0.67	1.92	47.0	21.0	1150	37.2	2.90	27.3	100	3.76
	9.0	4.4	10.1	860	39.2	24.0	0.61	1.79	45.3	21.9	860	37.3	3.27	26.4	110	3.35
	9.0	4.4	10.1	1150	40.8	27.2	0.67	1.87	47.2	21.9	1150	38.2	2.93	28.2	101	3.82
60	4.5	1.3	2.9	860	36.1	22.9	0.63	2.20	43.6	16.4	860	38.9	3.32	27.8	112	3.43
	4.5	1.3	2.9	1150	37.6	25.9	0.69	2.29	45.4	16.4	1150	39.8	2.99	29.7	102	3.91
	6.8	2.3	5.2	860	37.5	23.5	0.63	2.04	44.4	18.4	860	40.9	3.40	29.5	114	3.53
	6.8	2.3	5.2	1150	39.1	26.5	0.68	2.13	46.3	18.4	1150	41.9	3.05	31.5	104	4.02
	9.0	4.0	9.3	860	38.0	23.6	0.62	1.97	44.7	19.3	860	42.0	3.44	30.4	115	3.58
	9.0	4.0	9.3	1150	39.6	26.7	0.68	2.05	46.5	19.3	1150	43.0	3.09	32.5	105	4.08
70	4.5	1.2	2.7	860	34.6	22.5	0.65	2.46	42.9	14.0	860	43.1	3.47	31.4	116	3.64
	4.5	1.2	2.7	1150	36.0	25.5	0.71	2.56	44.7	14.0	1150	44.1	3.12	33.5	106	4.15
	6.8	2.1	4.9	860	35.8	22.9	0.64	2.28	43.6	15.7	860	45.2	3.55	33.2	119	3.74
	6.8	2.1	4.9	1150	37.3	25.9	0.70	2.38	45.4	15.7	1150	46.3	3.19	35.4	107	4.26
	9.0	3.8	8.7	860	36.4	23.1	0.63	2.20	43.9	16.6	860	46.4	3.59	34.2	120	3.79
	9.0	3.8	8.7	1150	37.9	26.1	0.69	2.29	45.7	16.6	1150	47.5	3.22	36.5	108	4.32
80	4.5	1.1	2.5	860	32.5	21.8	0.67	2.76	41.9	11.8	860	47.0	3.61	34.8	121	3.82
	4.5	1.1	2.5	1150	33.8	24.7	0.73	2.88	43.7	11.8	1150	48.2	3.24	37.1	109	4.36
	6.8	2.0	4.6	860	33.9	22.3	0.66	2.56	42.6	13.2	860	49.2	3.68	36.6	123	3.92
	6.8	2.0	4.6	1150	35.3	25.2	0.72	2.67	44.4	13.2	1150	50.4	3.30	39.1	111	4.47
	9.0	3.6	8.3	860	34.5	22.5	0.65	2.47	42.9	14.0	860	50.3	3.71	37.6	124	3.97
	9.0	3.6	8.3	1150	35.9	25.5	0.71	2.57	44.7	14.0	1150	51.5	3.34	40.1	111	4.53
85	4.5	1.0	2.4	860	31.5	21.5	0.68	2.9	41.5	10.8	860	48.8	3.67	36.3	123	3.90
	4.5	1.0	2.4	1150	32.8	24.4	0.74	3.05	43.3	10.8	1150	50.0	3.29	38.8	110	4.45
	6.8	1.9	4.4	860	32.8	21.9	0.67	2.72	42.1	12.1	860	50.9	3.73	38.1	125	4.00
	6.8	1.9	4.4	1150	34.1	24.8	0.73	2.84	43.8	12.1	1150	52.2	3.35	40.7	112	4.56
	9.0	3.5	8.1	860	33.4	22.1	0.66	2.62	42.3	12.8	860	52.0	3.76	39.0	126	4.05
	9.0	3.5	8.1	1150	34.7	25.0	0.72	2.73	44.1	12.8	1150	53.2	3.38	41.7	113	4.62
90	4.5	1.0	2.3	860	30.5	21.2	0.70	3.10	41.1	9.8	860	50.6	3.72	37.9	125	3.99
	4.5	1.0	2.3	1150	31.8	24.0	0.76	3.23	42.8	9.8	1150	51.9	3.34	40.4	112	4.54
	6.8	1.9	4.3	860	31.7	21.6	0.68	2.88	41.6	11.0	860	52.7	3.79	39.6	127	4.08
	6.8	1.9	4.3	1150	33.0	24.4	0.74	3.00	43.3	11.0	1150	54.0	3.40	42.3	113	4.65
	9.0	3.4	7.9	860	32.2	21.7	0.67	2.78	41.7	11.6	860	53.7	3.82	40.5	128	4.12
	9.0	3.4	7.9	1150	33.5	24.5	0.73	2.89	43.4	11.6	1150	55.0	3.43	43.2	114	4.70
100	4.5	0.9	2.2	860	28.3	20.5	0.72	3.47	40.2	8.1	Operation not recommended					
	4.5	0.9	2.2	1150	29.5	23.1	0.79	3.62	41.9	8.2						
	6.8	1.8	4.1	860	29.5	20.8	0.71	3.24	40.6	9.1						
	6.8	1.8	4.1	1150	30.7	23.5	0.77	3.37	42.2	9.1						
	9.0	3.3	7.5	860	30.1	21.0	0.70	3.13	40.8	9.6						
	9.0	3.3	7.5	1150	31.3	23.7	0.76	3.25	42.5	9.6						
110	4.5	0.9	2.1	860	26.2	19.8	0.75	3.88	39.5	6.8						
	4.5	0.9	2.1	1150	27.3	22.4	0.82	4.04	41.1	6.8						
	6.8	1.7	4.0	860	27.2	20.0	0.73	3.63	39.7	7.5						
	6.8	1.7	4.0	1150	28.4	22.6	0.80	3.78	41.3	7.5						
	9.0	3.1	7.2	860	27.6	20.0	0.72	3.51	39.6	7.9						
	9.0	3.1	7.2	1150	28.8	22.7	0.79	3.65	41.3	7.9						
120	4.5	0.9	2.0	860	24.1	19.0	0.79	4.31	38.9	5.6						
	4.5	0.9	2.0	1150	25.1	21.4	0.86	4.49	40.4	5.6						
	6.8	1.6	3.8	860	25.1	19.2	0.77	4.05	39.0	6.2						
	6.8	1.6	3.8	1150	26.1	21.8	0.83	4.21	40.6	6.2						
	9.0	3.0	7.0	860	25.4	19.2	0.76	3.92	38.9	6.5						
	9.0	3.0	7.0	1150	26.5	21.8	0.82	4.08	40.5	6.5						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 042

1,350 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	10.5	9.2	21.3	Operation not recommended							1050	28.8	3.37	18.1	95	2.51
	10.5	9.2	21.3								1400	29.5	3.03	19.3	90	2.86
30	5.3	2.3	5.3	1050	47.4	30.6	0.65	1.87	53.7	25.4	1050	31.6	3.45	20.5	98	2.68
	5.3	2.3	5.3	1400	49.3	34.7	0.70	1.95	55.9	25.4	1400	32.4	3.10	21.9	91	3.06
	7.9	4.3	10.0	1050	48.4	31.1	0.64	1.76	54.4	27.5	1050	32.9	3.49	21.6	99	2.76
	7.9	4.3	10.0	1400	50.4	35.2	0.70	1.83	56.6	27.5	1400	33.7	3.14	23.1	92	3.15
	10.5	7.9	18.2	1050	48.9	31.3	0.64	1.71	54.7	28.6	1050	33.6	3.52	22.3	100	2.80
	10.5	7.9	18.2	1400	50.9	35.5	0.70	1.78	57.0	28.6	1400	34.5	3.16	23.8	93	3.20
40	5.3	2.0	4.6	1050	45.9	29.9	0.65	2.05	52.8	22.4	1050	36.1	3.59	24.4	102	2.95
	5.3	2.0	4.6	1400	47.8	33.9	0.71	2.13	55.0	22.4	1400	37.0	3.23	26.1	94	3.36
	7.9	3.9	8.9	1050	47.0	30.4	0.65	1.92	53.4	24.5	1050	37.8	3.64	25.8	103	3.04
	7.9	3.9	8.9	1400	48.9	34.4	0.70	2.00	55.6	24.5	1400	38.7	3.27	27.6	96	3.46
	10.5	7.1	16.4	1050	47.5	30.7	0.65	1.86	53.8	25.5	1050	38.7	3.67	26.6	104	3.09
	10.5	7.1	16.4	1400	49.4	34.7	0.70	1.94	56.0	25.5	1400	39.6	3.30	28.4	96	3.52
50	5.3	1.8	4.1	1050	44.4	29.2	0.66	2.26	52.0	19.6	1050	40.8	3.74	28.5	106	3.20
	5.3	1.8	4.1	1400	46.2	33.1	0.72	2.35	54.2	19.6	1400	41.8	3.36	30.4	98	3.65
	7.9	3.5	8.1	1050	45.4	29.7	0.65	2.11	52.6	21.5	1050	42.8	3.80	30.2	108	3.30
	7.9	3.5	8.1	1400	47.3	33.6	0.71	2.20	54.8	21.5	1400	43.8	3.41	32.2	99	3.76
	10.5	6.5	15.0	1050	46.0	30.0	0.65	2.04	52.9	22.5	1050	43.9	3.83	31.1	109	3.35
	10.5	6.5	15.0	1400	47.9	33.9	0.71	2.12	55.1	22.5	1400	44.9	3.44	33.2	100	3.82
60	5.3	1.6	3.7	1050	43.1	28.8	0.67	2.51	51.7	17.2	1050	45.6	3.89	32.6	110	3.44
	5.3	1.6	3.7	1400	44.9	32.6	0.73	2.61	53.8	17.2	1400	46.7	3.49	34.8	101	3.92
	7.9	3.3	7.5	1050	43.9	29.0	0.66	2.34	51.8	18.8	1050	47.8	3.96	34.5	112	3.54
	7.9	3.3	7.5	1400	45.7	32.8	0.72	2.43	53.9	18.8	1400	49.0	3.56	36.9	102	4.04
	10.5	6.1	14.0	1050	44.4	29.2	0.66	2.25	52.1	19.7	1050	49.0	4.00	35.6	113	3.60
	10.5	6.1	14.0	1400	46.2	33.1	0.72	2.35	54.2	19.7	1400	50.2	3.59	38.0	103	4.10
70	5.3	1.5	3.4	1050	41.3	28.1	0.68	2.80	50.9	14.8	1050	50.3	4.04	36.7	114	3.65
	5.3	1.5	3.4	1400	43.0	31.8	0.74	2.91	52.9	14.8	1400	51.5	3.63	39.2	104	4.16
	7.9	3.1	7.1	1050	42.2	28.3	0.67	2.60	51.0	16.2	1050	52.8	4.11	38.8	117	3.76
	7.9	3.1	7.1	1400	43.9	32.0	0.73	2.71	53.1	16.2	1400	54.1	3.70	41.5	106	4.29
	10.5	5.7	13.2	1050	42.8	28.5	0.67	2.51	51.3	17.1	1050	54.1	4.16	40.0	118	3.82
	10.5	5.7	13.2	1400	44.5	32.3	0.73	2.61	53.4	17.1	1400	55.4	3.73	42.7	107	4.35
80	5.3	1.4	3.2	1050	39.5	27.4	0.70	3.13	50.1	12.6	1050	54.9	4.18	40.7	118	3.85
	5.3	1.4	3.2	1400	41.1	31.0	0.76	3.26	52.2	12.6	1400	56.3	3.76	43.4	107	4.39
	7.9	2.9	6.7	1050	40.4	27.6	0.68	2.91	50.3	13.9	1050	57.6	4.27	43.0	121	3.96
	7.9	2.9	6.7	1400	42.1	31.3	0.74	3.03	52.4	13.9	1400	59.0	3.83	45.9	109	4.51
	10.5	5.4	12.6	1050	41.0	27.9	0.68	2.80	50.6	14.6	1050	59.0	4.31	44.2	122	4.01
	10.5	5.4	12.6	1400	42.7	31.5	0.74	2.92	52.6	14.6	1400	60.4	3.87	47.2	110	4.58
85	5.3	1.3	3.1	1050	38.4	27.1	0.71	3.32	49.8	11.6	1050	57.2	4.25	42.6	120	3.94
	5.3	1.3	3.1	1400	40.0	30.7	0.77	3.46	51.8	11.6	1400	58.6	3.82	45.5	109	4.49
	7.9	2.8	6.5	1050	39.4	27.3	0.69	3.08	50.0	12.8	1050	59.9	4.34	44.9	123	4.05
	7.9	2.8	6.5	1400	41.1	30.9	0.75	3.21	52.0	12.9	1400	61.3	3.89	48.0	111	4.61
	10.5	5.3	12.3	1050	40.1	27.5	0.69	2.97	50.2	13.5	1050	61.3	4.38	46.2	124	4.10
	10.5	5.3	12.3	1400	41.7	31.2	0.75	3.09	52.3	13.6	1400	62.7	3.93	49.3	111	4.68
90	5.3	1.3	3.0	1050	37.4	26.8	0.72	3.51	49.4	10.7	1050	59.4	4.32	44.6	122	4.03
	5.3	1.3	3.0	1400	39.0	30.3	0.78	3.65	51.5	10.7	1400	60.8	3.88	47.6	110	4.59
	7.9	2.8	6.4	1050	38.5	27.0	0.70	3.26	49.6	11.8	1050	62.1	4.40	46.9	125	4.13
	7.9	2.8	6.4	1400	40.1	30.6	0.76	3.39	51.6	11.8	1400	63.6	3.96	50.1	112	4.71
	10.5	5.2	12.0	1050	39.1	27.2	0.70	3.14	49.8	12.5	1050	63.5	4.45	48.1	126	4.19
	10.5	5.2	12.0	1400	40.7	30.8	0.76	3.27	51.9	12.5	1400	65.1	3.99	51.4	113	4.77
100	5.3	1.2	2.8	1050	35.2	26.2	0.74	3.94	48.7	8.9	Operation not recommended					
	5.3	1.2	2.8	1400	36.7	29.6	0.81	4.10	50.7	8.9						
	7.9	2.7	6.1	1050	36.4	26.4	0.73	3.66	48.9	9.9						
	7.9	2.7	6.1	1400	37.9	29.9	0.79	3.81	50.9	9.9						
	10.5	5.0	11.6	1050	37.1	26.6	0.72	3.52	49.1	10.5						
	10.5	5.0	11.6	1400	38.6	30.1	0.78	3.67	51.1	10.5						
110	5.3	1.2	2.7	1050	32.8	25.5	0.78	4.41	47.9	7.4						
	5.3	1.2	2.7	1400	34.2	28.9	0.85	4.60	49.9	7.4						
	7.9	2.6	5.9	1050	34.1	25.7	0.76	4.11	48.1	8.3						
	7.9	2.6	5.9	1400	35.5	29.1	0.82	4.28	50.1	8.3						
	10.5	4.8	11.2	1050	34.8	25.9	0.75	3.96	48.4	8.8						
	10.5	4.8	11.2	1400	36.2	29.4	0.81	4.12	50.4	8.8						
120	5.3	1.1	2.6	1050	30.2	24.8	0.82	4.95	47.1	6.1						
	5.3	1.1	2.6	1400	31.4	28.0	0.89	5.15	49.1	6.1						
	7.9	2.5	5.7	1050	31.5	25.0	0.79	4.61	47.3	6.8						
	7.9	2.5	5.7	1400	32.8	28.3	0.86	4.80	49.3	6.8						
	10.5	4.7	10.8	1050	32.3	25.3	0.78	4.45	47.6	7.3						
	10.5	4.7	10.8	1400	33.7	28.6	0.85	4.63	49.5	7.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 048

1,600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	12.0	6.8	15.6	Operation not recommended							1200	30.9	3.54	19.6	94	2.56
	12.0	6.8	15.6								1600	31.6	3.18	20.9	88	2.92
30	6.0	1.8	4.1	1200	56.4	34.4	0.61	2.25	64.0	25.1	1200	33.9	3.60	22.3	96	2.76
	6.0	1.8	4.1	1600	58.8	39.0	0.66	2.34	66.7	25.1	1600	34.7	3.24	23.8	90	3.14
	9.0	3.4	7.8	1200	57.5	34.6	0.60	2.11	64.6	27.2	1200	34.4	3.63	22.7	97	2.78
	9.0	3.4	7.8	1600	59.8	39.1	0.65	2.20	67.2	27.2	1600	35.3	3.26	24.2	90	3.17
	12.0	6.2	14.3	1200	57.9	34.5	0.60	2.05	64.8	28.2	1200	35.1	3.65	23.3	97	2.82
	12.0	6.2	14.3	1600	60.3	39.1	0.65	2.14	67.5	28.2	1600	36.0	3.27	24.9	91	3.22
40	6.0	1.6	3.7	1200	54.8	34.0	0.62	2.47	63.2	22.2	1200	37.9	3.70	25.8	99	3.00
	6.0	1.6	3.7	1600	57.1	38.5	0.67	2.57	65.8	22.2	1600	38.8	3.33	27.5	92	3.42
	9.0	3.1	7.2	1200	56.0	34.3	0.61	2.31	63.8	24.3	1200	39.5	3.74	27.2	100	3.10
	9.0	3.1	7.2	1600	58.3	38.9	0.67	2.40	66.4	24.3	1600	40.5	3.36	29.1	93	3.53
	12.0	5.8	13.4	1200	56.6	34.5	0.61	2.23	64.1	25.4	1200	40.7	3.76	28.3	101	3.18
	12.0	5.8	13.4	1600	58.9	39.0	0.66	2.32	66.8	25.4	1600	41.7	3.37	30.2	94	3.62
50	6.0	1.5	3.4	1200	52.9	33.3	0.63	2.72	62.1	19.4	1200	43.6	3.81	31.0	104	3.36
	6.0	1.5	3.4	1600	55.1	37.7	0.68	2.83	64.7	19.4	1600	44.7	3.42	33.0	96	3.83
	9.0	3.0	6.8	1200	54.3	33.8	0.62	2.53	62.9	21.4	1200	44.9	3.85	32.1	105	3.42
	9.0	3.0	6.8	1600	56.5	38.3	0.68	2.64	65.5	21.4	1600	46.0	3.46	34.3	97	3.90
	12.0	5.5	12.7	1200	55.0	34.0	0.62	2.45	63.2	22.5	1200	46.0	3.87	33.1	106	3.49
	12.0	5.5	12.7	1600	57.2	38.5	0.67	2.55	65.8	22.5	1600	47.1	3.48	35.3	97	3.98
60	6.0	1.4	3.2	1200	50.7	32.5	0.64	3.02	61.0	16.8	1200	48.2	3.91	35.0	107	3.61
	6.0	1.4	3.2	1600	52.8	36.8	0.70	3.15	63.5	16.8	1600	49.3	3.51	37.4	99	4.11
	9.0	2.8	6.5	1200	52.3	33.1	0.63	2.81	61.8	18.6	1200	50.5	3.96	37.1	109	3.74
	9.0	2.8	6.5	1600	54.5	37.5	0.69	2.92	64.4	18.6	1600	51.8	3.56	39.6	100	4.26
	12.0	5.3	12.2	1200	53.0	33.4	0.63	2.70	62.2	19.6	1200	51.8	3.99	38.3	110	3.81
	12.0	5.3	12.2	1600	55.2	37.8	0.68	2.81	64.8	19.6	1600	53.1	3.58	40.9	101	4.34
70	6.0	1.3	3.0	1200	48.3	31.5	0.65	3.38	59.9	14.3	1200	53.5	4.02	39.8	111	3.90
	6.0	1.3	3.0	1600	50.3	35.7	0.71	3.52	62.3	14.3	1600	54.8	3.61	42.4	102	4.44
	9.0	2.7	6.3	1200	50.0	32.2	0.64	3.13	60.7	16.0	1200	56.2	4.08	42.2	113	4.03
	9.0	2.7	6.3	1600	52.1	36.4	0.70	3.25	63.2	16.0	1600	57.5	3.67	45.0	103	4.60
	12.0	5.1	11.8	1200	50.9	32.5	0.64	3.01	61.1	16.9	1200	57.6	4.12	43.4	114	4.10
	12.0	5.1	11.8	1600	53.0	36.8	0.70	3.13	63.6	16.9	1600	59.0	3.70	46.4	104	4.68
80	6.0	1.3	2.9	1200	45.7	30.5	0.67	3.79	58.6	12.1	1200	58.8	4.14	44.5	115	4.16
	6.0	1.3	2.9	1600	47.6	34.5	0.72	3.94	61.0	12.1	1600	60.2	3.72	47.5	105	4.74
	9.0	2.6	6.1	1200	47.5	31.2	0.66	3.50	59.5	13.6	1200	61.7	4.21	47.1	118	4.29
	9.0	2.6	6.1	1600	49.5	35.3	0.71	3.64	61.9	13.6	1600	63.2	3.78	50.2	107	4.90
	12.0	4.9	11.4	1200	48.4	31.6	0.65	3.37	59.9	14.4	1200	63.3	4.25	48.4	119	4.36
	12.0	4.9	11.4	1600	50.4	35.7	0.71	3.50	62.4	14.4	1600	64.8	3.82	51.7	107	4.97
85	6.0	1.2	2.8	1200	44.3	29.9	0.68	4.02	58.0	11.1	1200	61.3	4.20	46.7	117	4.28
	6.0	1.2	2.8	1600	46.1	33.8	0.73	4.19	60.4	11.1	1600	62.8	3.78	49.9	106	4.88
	9.0	2.6	6.0	1200	46.2	30.6	0.66	3.72	58.8	12.5	1200	64.3	4.28	49.4	120	4.40
	9.0	2.6	6.0	1600	48.1	34.7	0.72	3.87	61.3	12.5	1600	65.9	3.84	52.7	108	5.02
	12.0	4.9	11.3	1200	47.1	31.0	0.66	3.57	59.3	13.2	1200	65.9	4.32	50.7	121	4.47
	12.0	4.9	11.3	1600	49.0	35.1	0.72	3.72	61.7	13.2	1600	67.5	3.88	54.1	109	5.09
90	6.0	1.2	2.8	1200	42.9	29.3	0.68	4.26	57.4	10.1	1200	63.9	4.27	49.0	119	4.39
	6.0	1.2	2.8	1600	44.6	33.2	0.74	4.43	59.8	10.1	1600	65.5	3.83	52.3	108	5.01
	9.0	2.6	5.9	1200	44.8	30.1	0.67	3.93	58.2	11.4	1200	66.9	4.35	51.7	122	4.51
	9.0	2.6	5.9	1600	46.6	34.1	0.73	4.10	60.6	11.4	1600	68.6	3.91	55.1	110	5.14
	12.0	4.8	11.1	1200	45.7	30.5	0.67	3.78	58.6	12.1	1200	68.5	4.39	53.0	123	4.57
	12.0	4.8	11.1	1600	47.6	34.5	0.72	3.94	61.1	12.1	1600	70.2	3.95	56.6	111	5.21
100	6.0	1.2	2.7	1200	39.8	28.2	0.71	4.79	56.2	8.3	Operation not recommended					
	6.0	1.2	2.7	1600	41.4	31.9	0.77	4.99	58.5	8.3						
	9.0	2.5	5.8	1200	41.8	28.9	0.69	4.43	57.0	9.4						
	9.0	2.5	5.8	1600	43.5	32.7	0.75	4.62	59.3	9.4						
	12.0	4.7	10.9	1200	42.8	29.3	0.69	4.26	57.4	10.0						
	12.0	4.7	10.9	1600	44.6	33.2	0.74	4.44	59.7	10.0						
110	6.0	1.1	2.6	1200	36.5	26.9	0.74	5.40	55.0	6.8						
	6.0	1.1	2.6	1600	38.0	30.4	0.80	5.62	57.3	6.8						
	9.0	2.4	5.6	1200	38.6	27.7	0.72	5.00	55.8	7.7						
	9.0	2.4	5.6	1600	40.2	31.4	0.78	5.21	58.0	7.7						
	12.0	4.6	10.6	1200	39.7	28.1	0.71	4.81	56.1	8.2						
	12.0	4.6	10.6	1600	41.3	31.8	0.77	5.01	58.5	8.2						
120	6.0	1.1	2.5	1200	33.0	25.5	0.77	6.09	53.9	5.4						
	6.0	1.1	2.5	1600	34.4	28.9	0.84	6.34	56.1	5.4						
	9.0	2.4	5.5	1200	35.2	26.4	0.75	5.65	54.6	6.2						
	9.0	2.4	5.5	1600	36.7	29.9	0.81	5.88	56.8	6.2						
	12.0	4.5	10.4	1200	36.3	26.8	0.74	5.44	55.0	6.7						
	12.0	4.5	10.4	1600	37.8	30.3	0.80	5.66	57.2	6.7						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Performance Data
HBH/V 060

2,000 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	15.0	14.0	32.2	Operation not recommended							1460	41.6	4.98	25.8	96	2.45
	15.0	14.0	32.2								1950	42.6	4.48	27.5	90	2.79
30	7.5	3.4	7.9	1460	68.2	41.6	0.61	3.00	78.3	22.8	1460	45.5	5.08	29.2	99	2.62
	7.5	3.4	7.9	1950	71.0	47.0	0.66	3.12	81.6	22.8	1950	46.6	4.56	31.1	92	2.99
	11.3	6.8	15.8	1460	69.0	41.5	0.60	2.87	78.7	24.0	1460	47.4	5.13	30.9	100	2.71
	11.3	6.8	15.8	1950	71.8	47.0	0.65	2.99	82.0	24.0	1950	48.6	4.61	33.0	93	3.09
	15.0	12.6	29.2	1460	69.3	41.3	0.60	2.82	78.8	24.6	1460	48.5	5.16	31.8	101	2.75
	15.0	12.6	29.2	1950	72.1	46.8	0.65	2.94	82.1	24.6	1950	49.7	4.64	34.0	94	3.14
40	7.5	3.1	7.0	1460	66.6	41.1	0.62	3.21	77.4	20.8	1460	52.2	5.27	35.1	103	2.91
	7.5	3.1	7.0	1950	69.3	46.5	0.67	3.34	80.6	20.8	1950	53.5	4.73	37.5	95	3.31
	11.3	6.3	14.6	1460	67.8	41.5	0.61	3.05	78.1	22.2	1460	54.8	5.34	37.3	105	3.01
	11.3	6.3	14.6	1950	70.6	47.0	0.67	3.18	81.3	22.2	1950	56.1	4.80	39.8	97	3.43
	15.0	11.8	27.2	1460	68.3	41.6	0.61	2.98	78.4	22.9	1460	56.2	5.38	38.5	106	3.06
	15.0	11.8	27.2	1950	71.1	47.0	0.66	3.10	81.6	22.9	1950	57.5	4.83	41.1	97	3.49
50	7.5	2.8	6.4	1460	64.7	40.3	0.62	3.47	76.4	18.7	1460	59.5	5.48	41.4	108	3.18
	7.5	2.8	6.4	1950	67.3	45.6	0.68	3.61	79.6	18.7	1950	60.9	4.92	44.2	99	3.63
	11.3	5.9	13.7	1460	66.0	40.9	0.62	3.28	77.1	20.1	1460	62.6	5.57	44.1	110	3.29
	11.3	5.9	13.7	1950	68.7	46.3	0.67	3.41	80.3	20.1	1950	64.1	5.01	47.1	100	3.75
	15.0	11.1	25.7	1460	66.7	41.2	0.62	3.19	77.5	20.9	1460	64.3	5.63	45.6	111	3.35
	15.0	11.1	25.7	1950	69.4	46.6	0.67	3.32	80.7	20.9	1950	65.9	5.05	48.7	101	3.82
60	7.5	2.6	6.0	1460	62.4	39.3	0.63	3.78	75.3	16.5	1460	66.9	5.70	47.8	112	3.44
	7.5	2.6	6.0	1950	65.0	44.5	0.69	3.93	78.4	16.5	1950	68.5	5.12	51.0	103	3.92
	11.3	5.6	13.0	1460	63.7	39.9	0.63	3.56	75.8	17.9	1460	70.4	5.82	50.9	115	3.55
	11.3	5.6	13.0	1950	66.3	45.1	0.68	3.70	78.9	17.9	1950	72.1	5.22	54.4	104	4.05
	15.0	10.7	24.6	1460	64.2	40.0	0.62	3.45	75.9	18.6	1460	72.4	5.88	52.6	116	3.61
	15.0	10.7	24.6	1950	66.8	45.3	0.68	3.59	79.0	18.6	1950	74.1	5.28	56.2	105	4.12
70	7.5	2.4	5.6	1460	59.6	38.0	0.64	4.15	73.7	14.3	1460	74.2	5.93	54.1	117	3.66
	7.5	2.4	5.6	1950	62.0	43.0	0.69	4.32	76.7	14.3	1950	75.9	5.33	57.8	106	4.18
	11.3	5.4	12.5	1460	61.1	38.6	0.63	3.89	74.3	15.7	1460	78.0	6.05	57.5	119	3.78
	11.3	5.4	12.5	1950	63.6	43.7	0.69	4.05	77.4	15.7	1950	79.9	5.44	61.4	108	4.31
	15.0	10.3	23.7	1460	61.6	38.8	0.63	3.77	74.4	16.3	1460	80.1	6.12	59.2	121	3.84
	15.0	10.3	23.7	1950	64.2	43.9	0.68	3.92	77.5	16.3	1950	82.0	5.50	63.2	109	4.37
80	7.5	2.3	5.4	1460	56.4	36.7	0.65	4.59	72.1	12.3	1460	81.1	6.15	60.1	121	3.86
	7.5	2.3	5.4	1950	58.8	41.5	0.71	4.78	75.1	12.3	1950	83.0	5.52	64.2	109	4.41
	11.3	5.2	12.0	1460	58.1	37.3	0.64	4.29	72.7	13.5	1460	84.9	6.27	63.4	124	3.97
	11.3	5.2	12.0	1950	60.4	42.2	0.70	4.47	75.7	13.5	1950	87.0	5.63	67.7	111	4.52
	15.0	9.9	22.9	1460	58.7	37.5	0.64	4.15	72.8	14.1	1460	86.9	6.33	65.1	125	4.02
	15.0	9.9	22.9	1950	61.1	42.4	0.69	4.32	75.8	14.1	1950	89.0	5.69	69.5	112	4.58
85	7.5	2.3	5.2	1460	54.8	36.1	0.66	4.84	71.3	11.4	1460	84.1	6.25	62.8	123	3.95
	7.5	2.3	5.2	1950	57.0	40.8	0.72	5.04	74.2	11.4	1950	86.2	5.6	67.0	111	4.50
	11.3	5.1	11.8	1460	56.4	36.6	0.65	4.52	71.9	12.5	1460	87.8	6.4	65.9	126	4.04
	11.3	5.1	11.8	1950	58.7	41.4	0.70	4.71	74.8	12.5	1950	89.9	5.7	70.4	113	4.61
	15.0	9.8	22.6	1460	57.1	36.8	0.64	4.37	72.0	13.1	1460	89.6	6.4	67.5	127	4.09
	15.0	9.8	22.6	1950	59.5	41.6	0.70	4.55	75.0	13.1	1950	91.8	5.8	72.0	114	4.66
90	7.5	2.2	5.1	1460	53.1	35.4	0.67	5.09	70.5	10.4	1460	87.2	6.35	65.4	125	4.03
	7.5	2.2	5.1	1950	55.3	40.1	0.73	5.30	73.4	10.4	1950	89.3	5.70	69.9	112	4.59
	11.3	5.0	11.6	1460	54.8	35.9	0.66	4.76	71.0	11.5	1460	90.7	6.45	68.4	128	4.12
	11.3	5.0	11.6	1950	57.1	40.7	0.71	4.95	74.0	11.5	1950	92.9	5.80	73.1	114	4.70
	15.0	9.6	22.2	1460	55.5	36.1	0.65	4.60	71.2	12.1	1460	92.3	6.50	69.8	129	4.16
	15.0	9.6	22.2	1950	57.8	40.9	0.71	4.78	74.1	12.1	1950	94.5	5.84	74.5	115	4.74
100	7.5	2.1	4.9	1460	49.6	34.3	0.69	5.67	69.0	8.8	Operation not recommended					
	7.5	2.1	4.9	1950	51.7	38.9	0.75	5.90	71.9	8.8						
	11.3	4.9	11.3	1460	51.4	34.7	0.68	5.29	69.5	9.7						
	11.3	4.9	11.3	1950	53.5	39.3	0.73	5.51	72.3	9.7						
	15.0	9.4	21.7	1460	52.1	34.8	0.67	5.11	69.6	10.2						
	15.0	9.4	21.7	1950	54.2	39.4	0.73	5.32	72.4	10.2						
110	7.5	2.0	4.7	1460	46.6	33.8	0.73	6.33	68.2	7.4						
	7.5	2.0	4.7	1950	48.5	38.2	0.79	6.59	71.0	7.4						
	11.3	4.8	11.0	1460	47.8	33.6	0.70	5.91	68.0	8.1						
	11.3	4.8	11.0	1950	49.8	38.1	0.76	6.15	70.8	8.1						
	15.0	9.2	21.2	1460	48.6	33.7	0.69	5.71	68.2	8.5						
	15.0	9.2	21.2	1950	50.6	38.2	0.75	5.94	71.0	8.5						
120	7.5	2.0	4.6	1460	43.0	33.1	0.77	7.07	67.2	6.1						
	7.5	2.0	4.6	1950	44.7	37.5	0.84	7.36	70.0	6.1						
	11.3	4.7	10.7	1460	44.2	32.8	0.74	6.61	66.8	6.7						
	11.3	4.7	10.7	1950	46.0	37.1	0.81	6.88	69.6	6.7						
	15.0	9.0	20.7	1460	44.9	32.7	0.73	6.38	66.8	7.0						
	15.0	9.0	20.7	1950	46.8	37.0	0.79	6.64	69.5	7.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for ARI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

Air Flow Correction Table

Cooling Corrections											
Ent Air WB° F	Total Clg Cap	Sens Clg Cap Multipliers - Entering DB° F								Power	Heat of Rej
		65	70	75	80	80.6	85	90	95		
50	0.7800	0.9778	*	*	*	*	*	*	*	0.9972	0.8243
55	0.8327	0.8966	1.0556	*	*	*	*	*	*	0.9980	0.8667
60	0.8954	0.7505	0.9184	1.1056	*	*	*	*	*	0.9988	0.9169
65	0.9681		0.6778	0.8992	1.1213	1.1480	1.3439	*	*	0.9996	0.9747
66.2	0.9871		0.6103	0.8420	1.0698	1.0969	1.2938	*	*	0.9999	0.9897
67	1.0000		0.5507	0.7782	1.0000	1.0262	1.2161	1.4266	*	1.0000	1.0000
70	1.0508			0.6408	0.8856	0.9135	1.1082	1.3087	1.4869	1.0005	1.0403
75	1.1435				0.6085	0.6403	0.8566	1.0663	1.2376	1.0014	1.1135

* Sensible capacity equals total capacity.
ARI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/ 66.2°F WB, and Heating - 68°F DB/ 59°F WB entering air temperature.

Heating Corrections			
Ent Air DB° F	Htg Cap	Power	Heat of Ext
45	1.0507	0.7802	1.1314
50	1.0327	0.8227	1.0953
55	1.0195	0.8683	1.0646
60	1.0102	0.9168	1.0380
65	1.0033	0.9680	1.0139
68	1.0000	1.0000	1.0000
70	0.9979	1.0218	0.9908
75	0.9928	1.0781	0.9673
80	0.9866	1.1367	0.9419

Air Flow Correction Table

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	Sens/Tot Ratio	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
75	0.9764	1.1134	0.9368	0.9605	0.8837	0.9200	0.9606	0.9605
81.25	0.9829	1.0789	0.9551	0.9730	0.9130	0.9384	0.9691	0.9722
87.5	0.9889	1.0484	0.9717	0.9837	0.9393	0.9548	0.9784	0.9826
93.75	0.9947	1.0222	0.9867	0.9927	0.9668	0.9739	0.9887	0.9919
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
106.25	1.0050	0.9820	1.0116	1.0055	1.0434	1.0377	1.0122	1.0069
112.5	1.0096	0.9681	1.0216	1.0093	1.1016	1.0915	1.0253	1.0126
118.75	1.0138	0.9583	1.0299	1.0113	1.1790	1.1658	1.0394	1.0171
125	1.0177	0.9527	1.0365	1.0116	1.2798	1.2652	1.0544	1.0204

Antifreeze Correction Table

Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Corr. Fct. EWT 30°F
		EWT 90°F			EWT 30°F		
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070
	15	0.986	0.986	1.009	0.968	0.990	1.210
	25	0.978	0.978	1.014	0.947	0.983	1.360
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070
	15	0.990	0.990	1.007	0.968	0.990	1.160
	25	0.982	0.982	1.012	0.949	0.984	1.220
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.140
	15	0.994	0.994	1.005	0.944	0.983	1.300
	25	0.986	0.986	1.009	0.917	0.974	1.360
Ethylene Glycol	5	0.998	0.998	1.002	0.993	0.998	1.040
	15	0.994	0.994	1.004	0.980	0.994	1.120
	25	0.988	0.988	1.008	0.966	0.990	1.200

Blower Performance Data
Standard Unit

Airflow in CFM with wet coil and clean air filter

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)															
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
HBH/V 006	HI	220	150			310	300	290	280	270	250	230	210	180					
	MED					260	250	240	230	210	200	190	150						
	LOW					210	200	190	180	160	150								
HBH/V 009	HI	325	225			410	400	380	360	350	330	320	300	280					
	MED					390	370	360	340	320	310	290	280	260					
	LOW					340	330	322	310	300	280	260	250						
HBH/V 012	HI	400	300			470	460	450	440	430	420	400	390	380	320				
	MED					420	410	400	390	380	370	360	350	340					
	LOW					360	360	350	340	320	320	310	300						
HBH/V 015	HI	525	375			745	725	706	696	686	666	637	588	539	451				
	MED			686	676	666	657	647	637	617	608	588	549	510					
	LOW			608	598	588	578	568	559	549	529	510	480	451					
HBH/V 018	HI	600	450			745	725	706	696	686	666	637	588	539	451				
	MED			686	676	666	657	647	637	617	608	588	549	510					
	LOW			608	598	588	578	568	559	549	529	510	480	451					
HBH/V 024	HI	800	600									950	922	884	827	732	656		
	MED			960	950	941	931	912	893	874	855	836	817	789	732	665			
	LOW			779	770	760	751	741	732	722	713	694	684	665	618				
HBH/V 030	HI	1000	750							1102	1074	1045	1017	979	903	798			
	MED			1188	1169	1140	1121	1093	1064	1036	1017	988	960	922	846				
	LOW			1064	1045	1017	998	979	960	931	912	884	855	827	751				
HBH/V 036	HI	1200	900	1474	1455	1436	1416	1387	1358	1329	1310	1280	1232	1174	1077	931			
	MED			1174	1164	1106	1106	1096	1096	1086	1077	1067	1038	1009	912				
	LOW			980	980	970	970	960	960	951	951	941	922	902					
HBH/V 042	HI	1350	1050	1558	1530	1501	1473	1444	1416	1378	1340	1302	1264	1226	1131				
	MED			1416	1397	1368	1349	1321	1302	1273	1245	1207	1169	1131	1064				
	LOW			1083	1083	1074	1074	1064	1055										
HBH/V 048	HI	1600	1200					1881	1853	1815	1767	1710	1653	1596	1416	1216	1216		
	MED			1843	1824	1805	1786	1767	1729	1682	1653	1625	1577	1520	1340				
	LOW			1682	1663	1644	1625	1606	1587	1568	1530	1492	1435	1378	1264				
HBH/V 060	HI	2000	1500	2195	2195	2185	2176	2156	2117	2078	2048	2019	1999	1970	1921	1842	1754	1627	
	MED			2009	2009	1999	1980	1950	1931	1901	1882	1852	1823	1793	1744	1676	1588		
	LOW			1813	1813	1803	1793	1774	1764	1744	1725	1695	1666	1637	1568				

Black areas denote ESP where operation is not recommended.
Units factory shipped on medium speed. Other speeds require field selection.
All airflow is rated and shown above at the lower voltage if unit is dual voltage rated, e.g. 208V for 208-230V units.
Only two speed fan (H & M) available on 575V units.
Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.

Blower Performance Data
High Static

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)															
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
HBH/V 015	HS HI	525	375				774	764	755	745	735	715	696	676	637	519			
	HS MED			735	725	706	696	686	676	657	657	647	637	617	588	480			
	HS LOW			657	647	627	617	608	598	588	578	568	568	559	519				
HBH/V 018	HS HI	600	450				774	764	755	745	735	715	696	676	637	519			
	HS MED			735	725	706	696	686	676	657	657	647	637	617	588	480			
	HS LOW			657	647	627	617	608	598	588	578	568	568	559	519				
HBH/V 024	HS HI	800	600											979	903	798	665		
	HS MED											988	960	922	846	713			
	HS LOW							979	960	931	912	884	855	827	751	675			
HBH/V 030	HS HI	1000	750											1102	988	874	760		
	HS MED											1074	1026	979	884	779			
	HS LOW			998	988	979	960	941	931	912	893	865	836	798					
HBH/V 036	HS HI	1200	900									1484	1455	1426	1358	1251	1135	931	
	HS MED			1319	1310	1300	1290	1280	1271	1261	1242	1222	1213	1193	1116	1038			
	HS LOW			999	989	980	980	970	970	960	951	931	922	902					
HBH/V 042	HS HI	1350	1050					1473	1463	1444	1425	1397	1387	1378	1311	1178			
	HS MED			1321	1311	1302	1292	1283	1273	1254	1245	1235	1216	1188	1121				
	HS LOW																		
HBH/V 048	HS HI	1600	1200									1957	1938	1910	1862	1786	1701	1577	1435
	HS MED			1948	1948	1938	1919	1891	1872	1843	1824	1796	1767	1739	1691	1625	1539	1416	1254
	HS LOW			1758	1758	1748	1739	1720	1710	1691	1672	1644	1615	1587	1520	1435	1311		
HBH/V 060	HS HI	2000	1500	2352	2352	2342	2332	2323	2313	2293	2274	2254	2225	2195	2156	2087	2019	1940	1852
	HS MED			2117	2117	2107	2107	2097	2068	2038	2019	1999	1989	1980	1940	1891	1842	1460	1715
	HS LOW			1891	1891	1882	1882	1872	1862	1852	1852	1842	1833	1813	1793	1764	1715	1666	1588

Black areas denote ESP where operation is not recommended.
Units factory shipped on medium speed. Other speeds require field selection.
All airflow is rated and shown above at the lower voltage if unit is dual voltage rated, e.g. 208V for 208-230V units.
Only two speed fan (H & M) available on 575V units.
Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.

Physical Data

HB Series	006	009	012	015	018	024	030	036	042	048	060
Compressor (1 Each)	Rotary					Scroll					
Factory Charge R410A (oz)	17	18.5	23	32	43	43	47	50	70	74	82
PSC Fan Motor & Blower											
Fan Motor Type/Speeds	PSC/3	PSC/3	PSC-3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Fan Motor (hp)	1/25	1/10	1/10	1/6	1/6	1/4	3/4	1/2	3/4	3/4	1
Blower Wheel Size (Dia x w)	5x5	5x5	6x5	8x7	8x7	9x7	9x7	9x8	9x8	10x10	11x10
Water Connection Size											
IPT	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"
Vertical											
Air Coil Dimensions (H x W)	10x15	10x15	10x15	20x17.25	20x17.25	20x17.25	20x17.25	24x21.75	24x21.76	24x28.25	24x28.25
Filter Standard - 1" Throwaway	10x18	10x18	10x18	20x20	20x20	20x20	20x20	24x24	24x24	1-14x24, 1-18x24	1-14x24, 1-18x24
Weight - Operating (lbs.)	103	105	114	153	158	189	197	203	218	263	278
Weight - Packaged (lbs.)	113	115	124	158	163	194	202	209	224	270	285
Horizontal											
Air Coil Dimensions (H x W)	10x15	10x15	10x15	16x22	16x22	16x22	16x22	20x25	20x25	20x35	20x35
Filter Standard - 1" Throwaway	10x18	10x18	10x18	16x25	16x25	18x25	18x25	20x28 or 2-20x14	20x28 or 2-20x14	1-20x24, 1-20x14	1-20x24, 1-20x14
Weight - Operating (lbs.)	103	105	114	153	158	174	182	203	218	263	278
Weight - Packaged (lbs.)	113	115	124	158	163	179	187	209	224	270	285

Notes:
All units have grommet compressor mountings,TXV expansion device, and 1/2" & 3/4" electrical knockouts.

Unit Maximum Water Working Pressure	
Options	**Max Pressure PSIG [kPa]**
Base Unit	500 [3,445]
Discharge Pressure Water Regulating Valve	140 [965]

Use the lowest maximum pressure rating when multiple options are combined.

HB - Horizontal
Dimensional Data

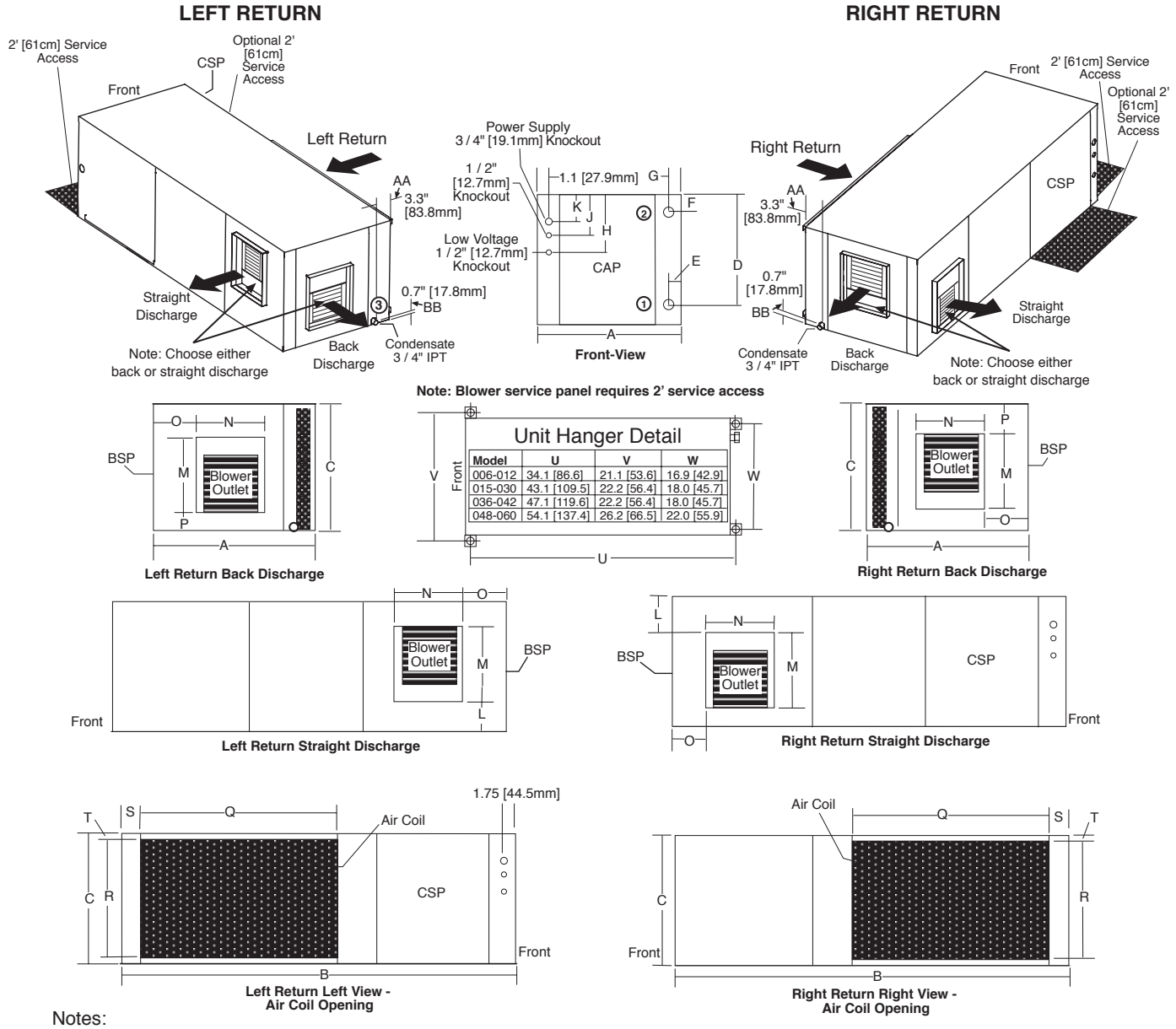
Horizontal Model		Overall Cabinet		
		A Width	B Length	C Height
006 - 012	in	19.1	34.1	11.1
	cm	48.5	86.6	28.2
015 - 018	in	20.1	43.1	17.0
	cm	51.1	109.5	43.2
024 - 030	in	20.1	43.1	18.3
	cm	51.1	109.5	46.5
036 - 042	in	20.1	47.1	21.0
	cm	51.1	119.6	53.3
048 - 060	in	24.1	54.1	21.0
	cm	61.2	137.4	53.3
060	in	24.1	54.1	21.0
	cm	61.2	137.4	53.3

Horizontal Model		Electrical Knockouts		
		H 1/2"	J 1/2"	K 3/4"
		Low Voltage	Low Voltage	Power Supply
006 - 012	in	8.1	5.1	2.1
	cm	20.6	13.0	5.4
015 - 030	in	12.1	9.1	6.1
	cm	30.8	23.2	15.6
036 - 060	in	16.1	13.1	10.1
	cm	41.0	33.3	25.7

Horizontal Model		Water Connections						
		①		②		③		
		Loop In D	Loop In E	Loop Out F	Loop Out G	Cond. 3/4" IPT		Loop In/Out IPT
						AA	BB	
006 - 012	in	9.6	1.1	1.5	1.1	3.3	0.7	1/2"
	cm	24.3	2.7	3.8	2.7	8.4	1.8	
015	in	15.1	1.4	3.2	1.4	3.3	0.7	1/2"
	cm	38.4	3.4	8.1	3.5	8.4	1.8	
018	in	15.1	1.4	4.1	1.4	3.3	0.7	1/2"
	cm	38.4	3.4	10.4	3.5	8.4	1.8	
024	in	16.4	1.4	4.4	1.4	3.3	0.7	3/4"
	cm	41.7	3.4	11.3	3.5	8.4	1.8	
030	in	16.4	1.4	3.1	1.4	3.3	0.7	3/4"
	cm	41.7	3.4	7.8	3.5	8.4	1.8	
036	in	19.1	1.4	5.3	1.4	3.3	0.7	3/4"
	cm	48.5	3.4	13.4	3.5	8.4	1.8	
042	in	19.1	1.4	4.4	1.4	3.3	0.7	3/4"
	cm	48.5	3.4	11.3	3.5	8.4	1.8	
048	in	19.1	1.4	4.4	1.4	3.3	0.7	1"
	cm	48.5	3.4	11.1	3.5	8.4	1.8	
060	in	19.1	1.4	3.8	1.4	3.3	0.7	1"
	cm	48.5	3.4	9.7	3.5	8.4	1.8	

Horizontal Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		L	M Supply Height	N Supply Width	O	P	Q Return Width	R Return Height	S	T
006 - 012	in	0.8	8.9	6.7	8.2	1.3	16.1	9.8	1.1	0.6
	cm	1.9	22.7	17.0	13.3	3.3	41.0	25.0	2.7	1.5
015 - 018	in	2.6	13.3	9.9	4.1	1.3	23.0	15.0	1.1	1.0
	cm	6.6	33.8	25.1	10.5	3.3	58.4	38.1	2.8	2.5
024 - 030	in	2.6	13.3	9.9	4.1	1.3	23.0	16.3	1.1	1.0
	cm	6.6	33.8	25.1	10.5	3.3	58.4	41.4	2.8	2.5
036 - 042	in	2.5	16.1	11.0	3.0	2.5	25.9	19.0	1.1	1.0
	cm	6.3	40.9	27.9	7.7	6.4	65.8	48.3	2.8	2.5
048	in	3.7	16.1	13.7	4.1	1.3	35.9	19.0	1.1	1.0
	cm	9.5	41.0	34.8	10.3	3.2	91.2	48.3	2.8	2.5
060	in	1.7	18.1	13.7	4.1	1.3	35.9	19.0	1.1	1.0
	cm	4.4	46.0	34.8	10.3	3.2	91.2	48.3	2.8	2.5

HB - Horizontal Dimensional Data



Notes:

1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Horizontal units shipped with filter bracket only. This bracket should be removed for return duct connection
3. Discharge flange and hanger brackets are factory installed.
4. Condensate is 3/4" IPT.
5. Blower service panel requires 2' service access.
6. Blower service access is through back panel on straight discharge units or through panel opposite air coil on back discharge units

Legend:
CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel

HB - Vertical Upflow Dimensional Data

Vertical upflow Model		Overall Cabinet		
		A Width	B Depth	C Height
006 - 012	in	19.1	19.1	22.0
	cm	48.5	48.5	55.9
015 - 018	in	21.5	21.5	39.0
	cm	54.6	54.6	99.1
024 - 030	in	21.5	21.5	40.0
	cm	54.6	54.6	101.6
036 - 042	in	21.5	26.0	45.0
	cm	54.6	66.0	114.3
048 - 060	in	24.0	32.5	46.0
	cm	61.0	82.6	116.8

Vertical Upflow Model		Water Connections - Standard Units						
		①		②		③		
		Loop In D	Loop In E	Loop Out F	Loop Out G	Cond. 3/4" IPT H	Cond. 3/4" IPT I	Loop In/Out IPT
006 - 012	in	1.4	1.6	9.5	1.6	6.1	1.6	1/2"
	cm	3.6	4.1	24.1	4.3	15.6	4.1	
015	in	1.9	1.4	13.8	1.4	8.1	1.4	1/2"
	cm	4.8	3.6	35.1	3.6	20.6	3.6	
018	in	1.9	1.4	12.9	1.4	8.1	1.4	1/2"
	cm	4.8	3.6	32.8	3.6	20.6	3.6	
024	in	1.9	1.4	13.8	1.4	8.1	1.4	3/4"
	cm	4.8	3.6	35.1	3.6	20.6	3.6	
030	in	1.9	1.4	15.2	1.4	8.1	1.4	3/4"
	cm	4.8	3.6	38.6	3.6	20.6	3.6	
036	in	1.9	1.4	15.7	1.4	8.1	1.4	3/4"
	cm	4.8	3.6	39.9	3.6	20.6	3.6	
042	in	1.9	1.4	16.6	1.4	8.1	1.4	3/4"
	cm	4.8	3.6	42.0	3.6	20.6	3.6	
048	in	1.9	1.4	16.6	1.4	8.1	1.4	1"
	cm	4.8	3.6	42.2	3.6	20.6	3.6	
060	in	1.9	1.4	17.2	1.4	8.1	1.4	1"
	cm	4.8	3.6	43.7	3.6	20.6	3.6	

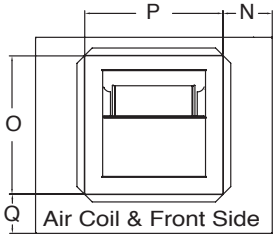
Vertical Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	Low Voltage	Power Supply
006 - 012	in	2.9	5.9	8.9
	cm	7.3	14.9	22.5
015 - 060	in	4.1	7.1	10.1
	cm	10.5	18.1	25.7

Notes:
1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available. (Except on TCV 009-030 with front return)
3. Discharge flange is field installed.
4. Condensate is 3/4" IPT.

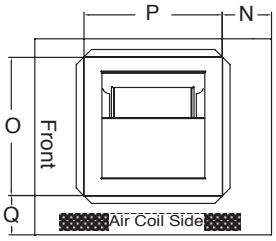
Legend:
CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel
ASP = Alternative Service Panel

HB - Vertical Upflow
Dimensional Data

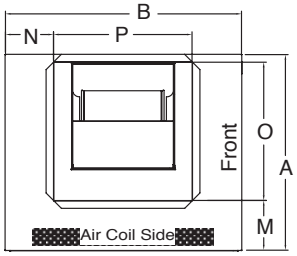
Vertical Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U
006 - 012	in	8.9	5.1	9.0	9.0	5.5	2.1	16.2	9.9	0.7
	cm	22.7	12.9	22.9	22.9	14.0	5.3	41.1	25.1	1.9
015 - 018	in	6.4	3.8	14.0	14.0	5.3	2.3	18.3	20.9	0.7
	cm	16.1	9.5	35.6	35.6	13.6	5.8	46.5	53.1	1.9
024 - 030	in	6.4	3.8	14.0	14.0	5.3	2.3	18.3	20.9	0.7
	cm	16.1	9.5	35.6	35.6	13.6	5.8	46.5	53.1	1.9
036 - 042	in	6.4	3.8	14.0	14.0	5.1	2.3	22.8	23.9	0.7
	cm	16.1	9.5	35.6	35.6	13.1	5.8	57.9	60.7	1.9
048 - 060	in	6.9	7.3	16.0	18.0	5.1	2.3	29.3	22.5	0.7
	cm	17.4	18.4	40.6	45.7	13.1	5.8	74.4	57.0	1.9



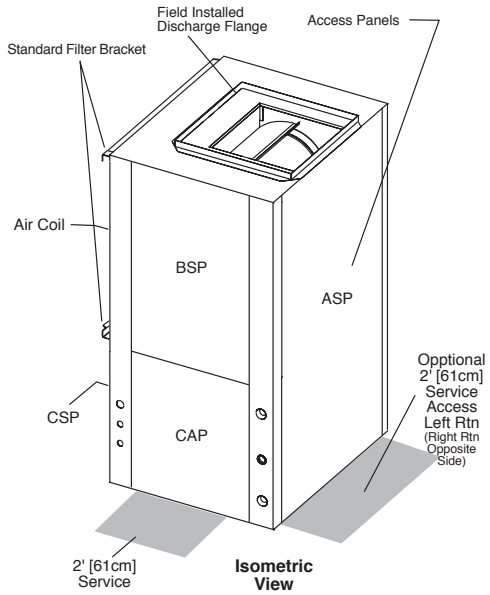
Top View-Front Return



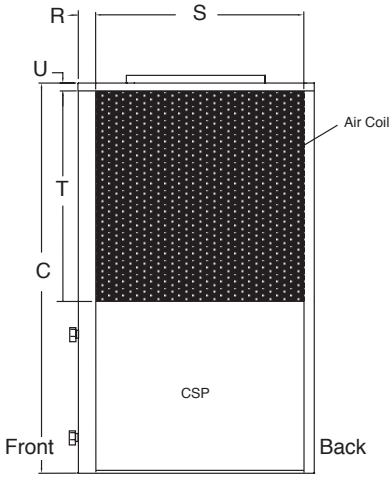
Top View-Right Return



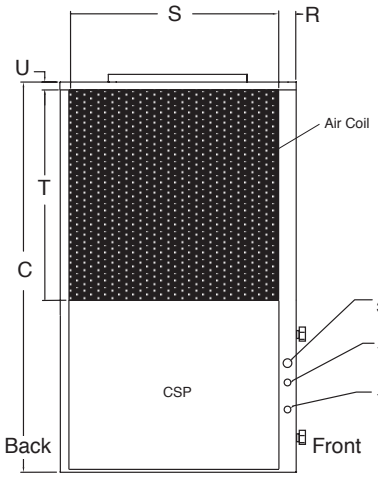
Top View-Left Return



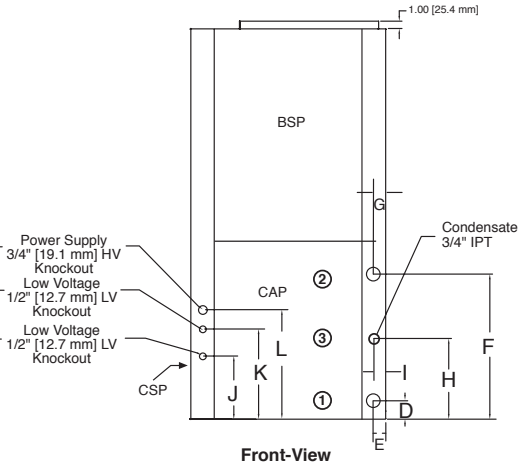
Isometric View



Right Return Right View - Air Coil Opening



Left Return Left View - Air Coil Opening



Front-View

Corner Weights for HBH Series Units

Model		Total	Left-Front*	Right-Front*	Left-Back*	Right-Back*
HBH006	Lbs	103	37	24	23	19
	kg	46.72	16.78	10.89	10.43	8.62
HBH009	Lbs	105	38	24	23	20
	kg	47.63	17.24	10.89	10.43	9.07
HBH012	Lbs	114	42	26	25	21
	kg	51.71	19.05	11.79	11.34	9.53
HBH015	Lbs	153	53	36	34	30
	kg	69	24	16	15	14
HBH018	Lbs	158	55	37	35	31
	kg	72	25	17	16	14
HBH024	Lbs	174	62	40	39	33
	kg	79	28	18	18	15
HBH030	Lbs	182	67	41	40	34
	kg	83	30	19	18	15
HBH036	Lbs	203	75	47	44	37
	kg	92	34	21	20	17
HBH042	Lbs	218	81	50	48	39
	kg	99	37	23	22	18
HBH048	Lbs.	263	98	60	58	47
	kg	119	44	27	26	21
HBH060	Lbs.	303	103	64	61	75
	kg	137	47	29	28	34

*Front is control box end.

Electrical Data - Standard Unit

HB Model	Voltage Code	Rated Voltage	Voltage Min/ Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA				
006	1	208-230/60/1	197/254	1	3.3	17.7	0.40	3.7	4.5	15
009	1	208-230/60/1	197/254	1	5.6	22.2	0.80	6.4	7.8	15
012	1	208-230/60/1	197/254	1	5.1	32.5	0.80	5.9	7.2	15
015	1	208-230/60/1	197/254	1	6.0	29.0	1.00	7.0	8.5	15
	8	265/60/1	239/292	1	5.4	28.0	0.86	6.3	7.6	15
018	1	208-230/60/1	197/254	1	7.2	33.0	1.00	8.2	10.0	15
	8	265/60/1	239/292	1	5.9	28.0	0.86	6.8	8.2	15
024	1	208-230/60/1	197/254	1	12.8	58.3	1.50	14.3	17.5	30
	8	265/60/1	239/292	1	9.6	54.0	1.30	10.9	13.3	20
030	1	208-230/60/1	197/254	1	14.1	73.0	3.00	17.1	20.6	30
	8	265/60/1	239/292	1	11.2	60.0	2.70	13.9	16.7	25
	3	208-230/60/3	197/254	1	8.9	58.0	3.00	11.9	14.1	20
	4	460/60/3	414/506	1	4.2	28.0	1.70	5.9	7.0	15
036	1	208-230/60/1	197/254	1	16.7	79.0	1.80	18.5	22.7	35
	8	265/60/1	239/292	1	13.5	72.0	2.00	15.5	18.9	30
	3	208-230/60/3	197/254	1	10.4	73.0	1.80	12.2	14.8	25
	4	460/60/3	414/506	1	5.8	38.0	1.24	7.0	8.5	15
042	1	208-230/60/1	197/254	1	17.9	112.0	3.00	20.9	25.4	40
	3	208-230/60/3	197/254	1	13.5	88.0	3.00	16.5	19.9	30
	4	460/60/3	414/506	1	6.0	44.0	1.70	7.7	9.2	15
	5	575/60/3	518/633	1	4.9	34.0	1.40	6.3	7.5	15
048	1	208-230/60/1	197/254	1	21.8	117.0	3.40	25.2	30.7	50
	3	208-230/60/3	197/254	1	13.7	83.1	3.40	17.1	20.5	30
	4	460/60/3	414/506	1	6.2	41.0	1.80	8.0	9.6	15
	5	575/60/3	518/633	1	4.8	33.0	1.40	6.2	7.4	15
060	1	208-230/60/1	197/254	1	26.3	134.0	4.90	31.2	37.8	60
	3	208-230/60/3	197/254	1	15.6	110.0	4.90	20.5	24.4	40
	4	460/60/3	414/506	1	7.8	52.0	2.50	10.3	12.3	20
	5	575/60/3	518/633	1	5.8	38.9	1.90	7.7	9.2	15

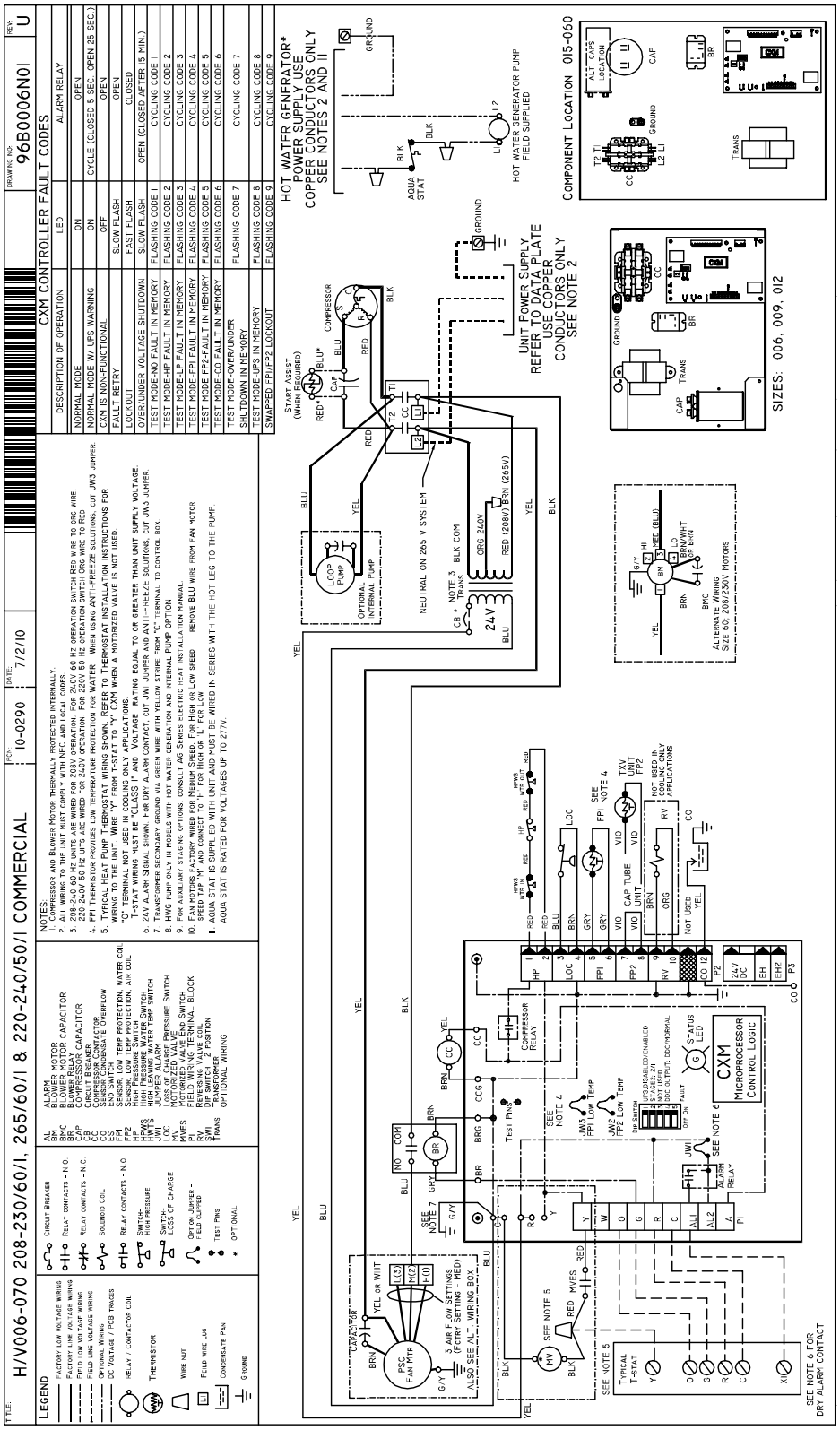
HACR circuit breaker in USA only
All fuses Class RK-5

Electrical Data
High Static Blower

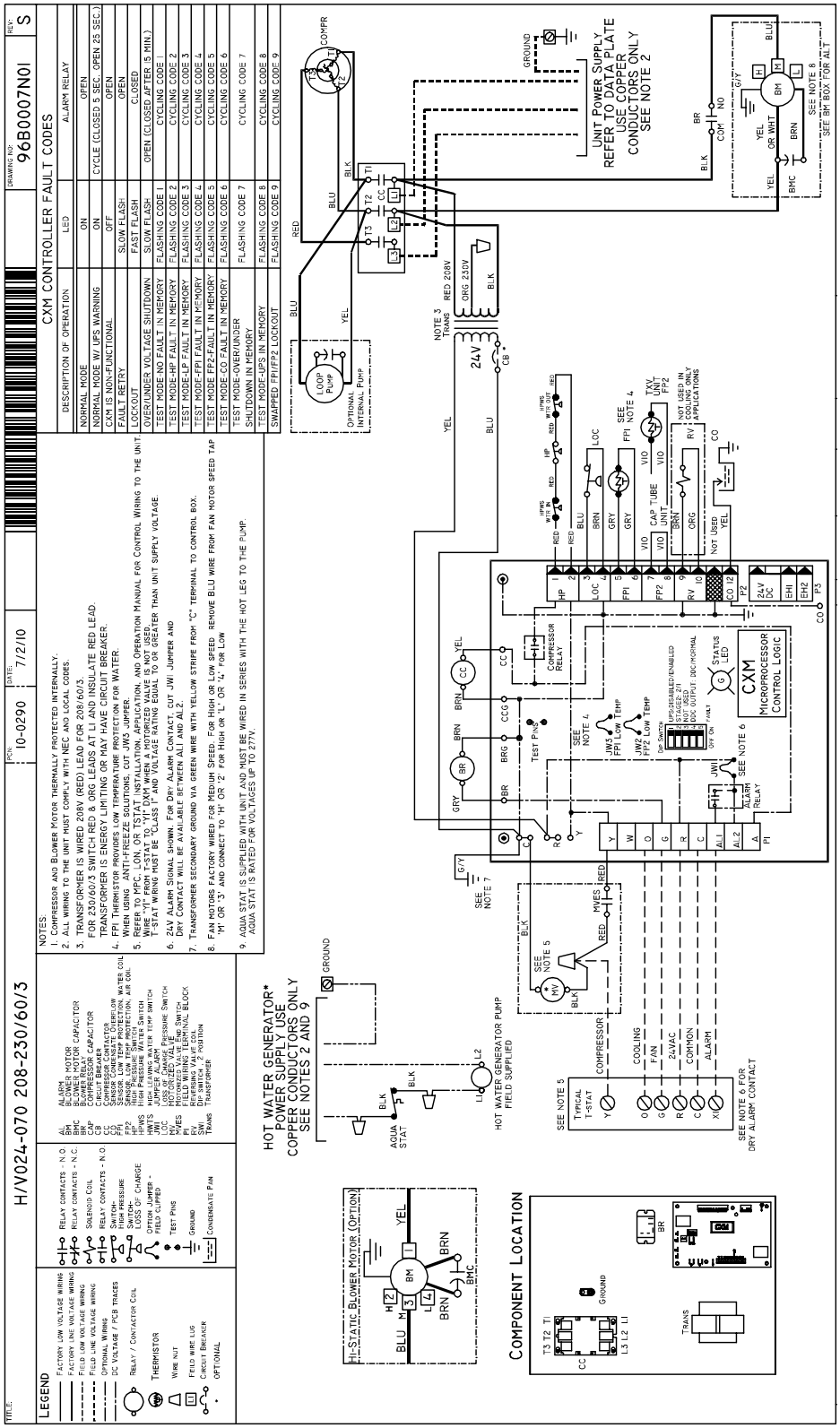
HB Model	Voltage Code	Rated Voltage	Voltage Min/ Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA				
015	1	208-230/60/1	197/254	1	6.0	29.0	1.00	7.0	8.5	15
	8	265/60/1	239/292	1	5.4	28.0	0.86	6.3	7.6	15
018	1	208-230/60/1	197/254	1	7.2	33.0	1.50	8.7	10.5	15
	8	265/60/1	239/292	1	5.9	28.0	1.30	7.2	8.7	15
024	1	208-230/60/1	197/254	1	12.8	58.3	3.00	15.8	19.0	30
	8	265/60/1	239/292	1	9.6	54.0	2.70	12.3	14.7	20
030	1	208-230/60/1	197/254	1	14.1	73.0	3.00	17.1	20.6	30
	8	265/60/1	239/292	1	11.2	60.0	2.70	13.9	16.7	25
	3	208-230/60/3	197/254	1	8.9	58.0	3.00	11.9	14.1	20
	4	460/60/3	414/506	1	4.2	28.0	1.70	5.9	7.0	15
036	1	208-230/60/1	197/254	1	16.7	79.0	3.00	19.7	23.9	40
	8	265/60/1	239/292	1	13.5	72.0	2.70	16.2	19.6	30
	3	208-230/60/3	197/254	1	10.4	73.0	3.00	13.4	16.0	25
	4	460/60/3	414/506	1	5.8	38.0	1.70	7.5	9.0	15
042	1	208-230/60/1	197/254	1	17.9	112.0	3.00	20.9	25.4	40
	3	208-230/60/3	197/254	1	13.5	88.0	3.00	16.5	19.9	30
	4	460/60/3	414/506	1	6.0	44.0	1.70	7.7	9.2	15
	5	575/60/3	518/633	1	4.9	34.0	1.40	6.3	7.5	15
048	1	208-230/60/1	197/254	1	21.8	117.0	4.90	26.7	32.2	50
	3	208-230/60/3	197/254	1	13.7	83.1	4.90	18.6	22.0	35
	4	460/60/3	414/506	1	6.2	41.0	2.50	8.7	10.3	15
	5	575/60/3	518/633	1	4.8	33.0	1.90	6.7	7.9	15
060	1	208-230/60/1	197/254	1	26.3	134.0	5.80	32.1	38.7	60
	3	208-230/60/3	197/254	1	15.6	110.0	5.80	21.4	25.3	40
	4	460/60/3	414/506	1	7.8	52.0	2.60	10.4	12.4	20
	5	575/60/3	518/633	1	5.8	38.9	2.30	8.1	9.6	15

HACR circuit breaker in USA only
All fuses Class RK-5

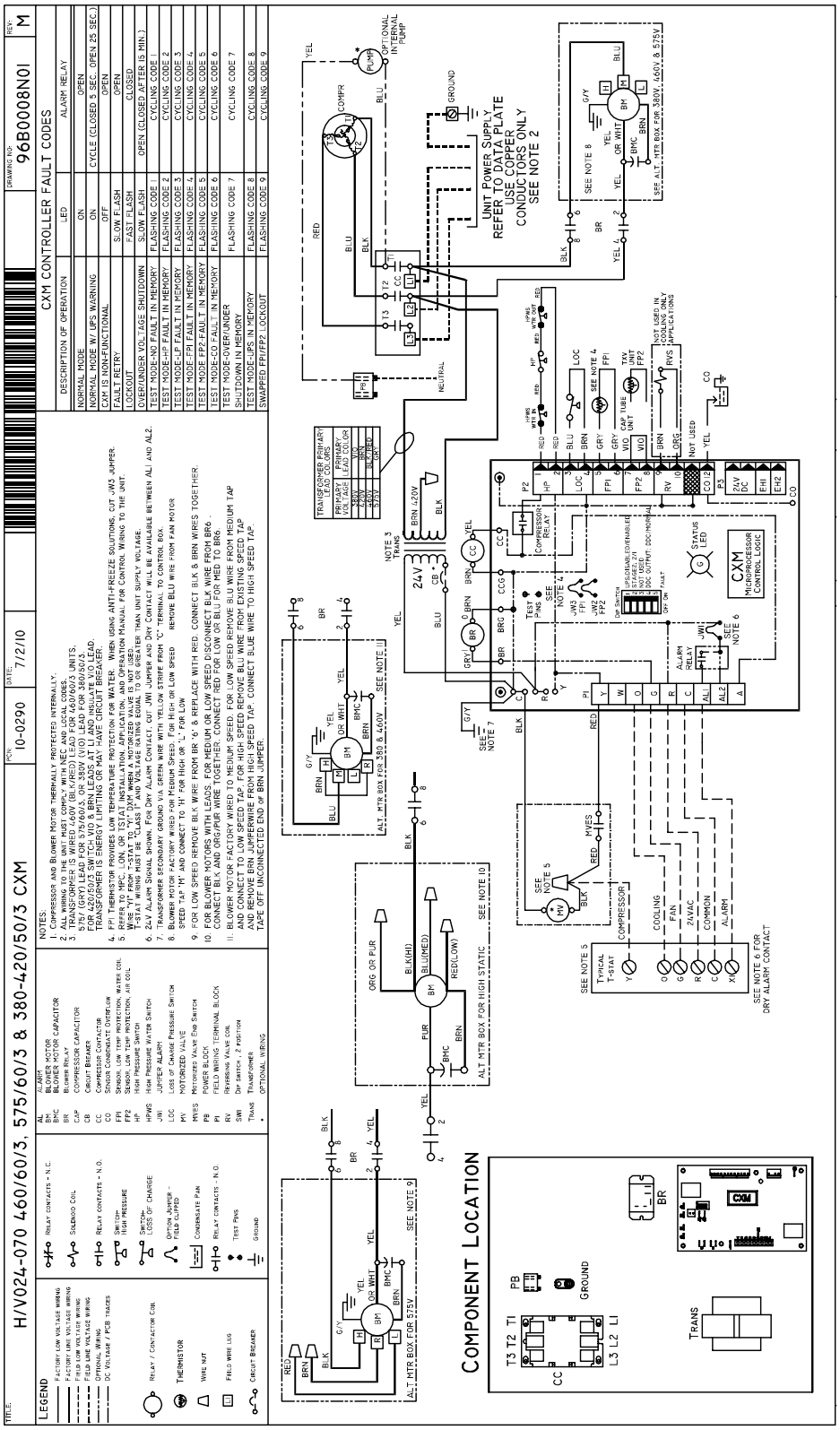
Typical Wiring Diagram
Single Phase HB Units With CXM Controller



Typical Wiring Diagram
Three Phase 208/230V HB Units With CXM Controller



Typical Wiring Diagram
Three Phase 460/575V HB Units With CXM Controller



Design, material, performance data and components
subject to change without notice.

HEAT CONTROLLER, INC.

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